



CITY OF CLEVELAND
Mayor Frank G. Jackson

Mayor's Office of Capital Projects
Division of Engineering and Construction
216.664.2381

STREET OPENING PERMIT FOR RIGHT OF WAY CONSTRUCTION

CITY OF CLEVELAND, DIVISION OF ENGINEERING AND CONSTRUCTION

1. **DEFINITION:** Any construction in the public right-of-way for the purposes of installing new or repairing/upgrading existing private and public facilities shall be governed by the requirements of this permit. The Street Opening Permit is required for the removal or replacement of **ANY AND ALL** existing City infrastructure, including roadways, sidewalks, curb, ADA ramps, traffic signalization and appurtenances, public owned sewer, water and electrical utilities necessary for the purposes of construction or damaged during construction. Prior to meeting the requirements and acquiring this permit, the Contractor **DOES NOT** have the permission to remove and/or replace **ANY** portion of said infrastructure. A Sidewalk Permit is required for the repair and replacement of existing sidewalks, aprons, curbing, and ADA ramps.
2. **APPLYING FOR STREET OPENING PERMITS:** Street Opening Permits can be applied for through the Department of Finance/Bureau of Licenses & Assessments at <http://www.city.cleveland.oh.us/CityofCleveland/Home/Government/CityAgencies/Finance> Contact Doris Nemer at (216) 664-2174 for additional information. The City will require a minimal deposit of \$1000.00 to the Director of Public Service for the cost of inspection. If the deposit exceeds the amount charged for inspection, the Director of Public Service shall issue a warrant to return the excess to the Contractor responsible for the deposit. If the deposit is insufficient to the amount charged for inspection, the Contractor shall be required to deposit additional funds to cover the shortfall as prescribed by the Director of Public Service.
3. **MAINTENANCE OF TRAFFIC/STREET CLOSURES:** Maintenance of Traffic Plans and notification of street closures must be submitted with the Street Opening Permit Package. MOT Plans are approved by the Division of Traffic and shall be in accordance with the 2002 Ohio Manual of Uniform Traffic Control Devices and as approved by the Traffic Division. The City reserves the right to adjust work hours based upon the impact the project has on pedestrian and vehicular traffic flow. Please refer to the Related City Documents in this packet.
4. **WORK HOUR LIMITATIONS:** Work which will block the flow of traffic **SHALL NOT** be performed Monday-Friday, inclusive, **7:00 AM to 9:00 AM** and **3:30 PM to 6:00 PM**. Work which shall be performed within 1000 feet of any apartment building, condominium, home, business or hotel **SHALL NOT** be performed any day, inclusive, **BEFORE 8:00 AM** or **AFTER 10:00 PM**.
5. **ROADWAY/SITE RESTORATION REQUIRMENTS:**
 - A moratorium is in place for all streets that have been constructed or reconstructed within the past **FIVE YEARS** from present day. The roadway and sidewalk pavement restoration for these streets shall be **FULL-DEPTH FROM JOINT TO JOINT AND FROM CURB TO CURB** from beginning of project to end project (**WITHIN WORK LIMITS**). The restoration shall be performed to **EXACTLY MATCH** the original materials, including decorative crosswalks/sidewalks and brick paver units, and in accordance with the most



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recent City of Cleveland standard drawings and specifications. The contractor **MUST PROVIDE** to the Division of Engineering and Construction stamped plans and specifications for moratorium street restoration work to confirm work conforms to the original material construction. All new joints shall be properly sealed in accordance with the most recent City of Cleveland standard drawings and specifications.

- Any street that has been rehabilitation, improved, reconstructed or resurfaced within the past **SEVEN YEARS** from present day must be resurfaced **FROM CURB TO CURB** from beginning of project to end project (**WITHIN WORK LIMITS**). The street must also be ground to accept 2 inch asphalt overlay. Intersection crossovers must be squared off and may include grinding and resurfacing of the **ENTIRE INTERSECTION**. All asphalt construction shall be in accordance with the most recent City of Cleveland standard drawings and specifications.
- The pavement replacement work for all other streets shall be in general conformance with the pavement repair details in the Related City Documents in this packet.
- No obstructions shall be placed in front or interfere with any fire hydrant or fire alarm box.
- Intersection crossovers must be squared off and may include grinding and resurfacing of the **ENTIRE INTERSECTION**.
- ADA compliant curb ramps shall be constructed at intersections adjacent to roadway and sidewalk pavement restoration work and as per the direction of the Commissioner of Engineering and Construction.
- Only Cleveland LSM mix is approved for utility backfill material. Refer to the Related City Documents for specific information.
- Contractor must coordinate for City inspection of construction, including restoration work and backfilling, at least **5 BUSINESS DAYS IN ADVANCE**. Call Lou Griggs at (216) 664-3425 to arrange for an inspection with City personnel.
- The City reserves the right to **CLOSE** any construction project in progress **INDEFINITELY** due to adverse weather conditions.
- The Contractor shall be prepared to repair/replace **ANY WORK DEEMED TO BE SUBSTANDARD** or one without inspection sign-off by the City of Cleveland, Division of Engineering and Construction.

6. **RTA COORDINATION:** The Contractor shall cooperate with, and coordinate with, the City of Cleveland and GCRTA for **ANY** construction within the public right-of-way. The Contractor shall minimize interference with the GCRTA bus stop operations and the bus lane/stops **SHALL NOT** be blocked/closed, **NOR WILL ALLOW** public vehicular traffic to be diverted into the bus lane, without prior City/RTA approval. The Contractor shall notify the GCRTA Operations at least 24 hours in advance at (216) 566-5107, 5108, 5109, or 5110. The Contractor shall re-notify GCRTA, at the phone number provided above, of the changes in MOT plans at least 24 hours in advance.
7. **PRIVATE/PUBLIC UTILITIES AND TRAFFIC SIGNALS:** Care shall be taken to not damage underground utilities, including buried traffic signal equipment, and hand digging shall be utilized where necessary to prevent damage to underground utilities.
 - The Contractor is responsible for contacting OUPS, and non-OUPS utility companies, at least 48 hours before digging.



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- The Contractor is responsible for reviewing existing construction plans showing recorded utilities prior to construction. The contractor can obtain construction plans and bid documents at City Hall, Room No. 518, Phone Number (216) 664-2381.
 - The Contractor is responsible for and shall replace damaged signal traffic equipment as necessary, and must contact the Traffic Signal Shop (Chuck Vokaty at (216) 420-8270) and Traffic Engineering (Robert Mavec at (216) 664-3194) for repairs.
 - The Contractor is responsible for maintaining a minimal twenty-four inch (24") clearance at CPP manhole walls and twelve inch (12") at CPP electrical duct banks.
 - The minimal number of conduits that can be installed underground with the street opening permit are as follows: 4-4 inch, 8-2 inch, or 12-1 ½ inch.
8. **DIRECTION DRILLING/BORING RESTRICTIONS:** Directional drilling and/or boring is not permitted in the City of Cleveland without special approval from the Commissioner of Engineering and Construction.
9. **AS-BUILT DRAWING REQUIREMENTS:** As-Built Drawings will be submitted to the City of Cleveland prior to the release of the inspection deposit.
10. **CITY CONTACT NUMBERS:**
- Engineering and Construction-Permit Status (216) 664-3425
 - Surveys and Plats (216) 664-2460
 - Traffic Engineering (216) 664-3194
 - Cleveland Public Power (216) 664-4245 or (216) 664-4245
 - Cleveland Water Department (216) 664-2444 Ext. 5560
or (216) 664-2444 Ext. 5526
 - Cleveland Water Pollution Control (216) 664-2756
or (216) 664-2052
 - Construction Inspection (216) 664-2391



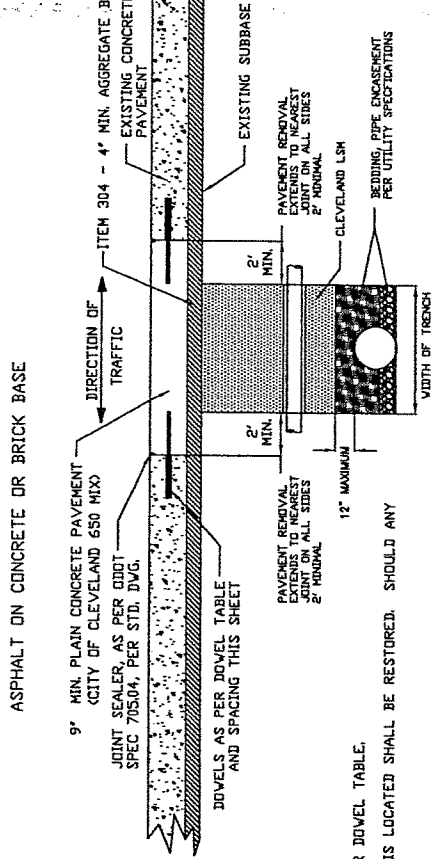
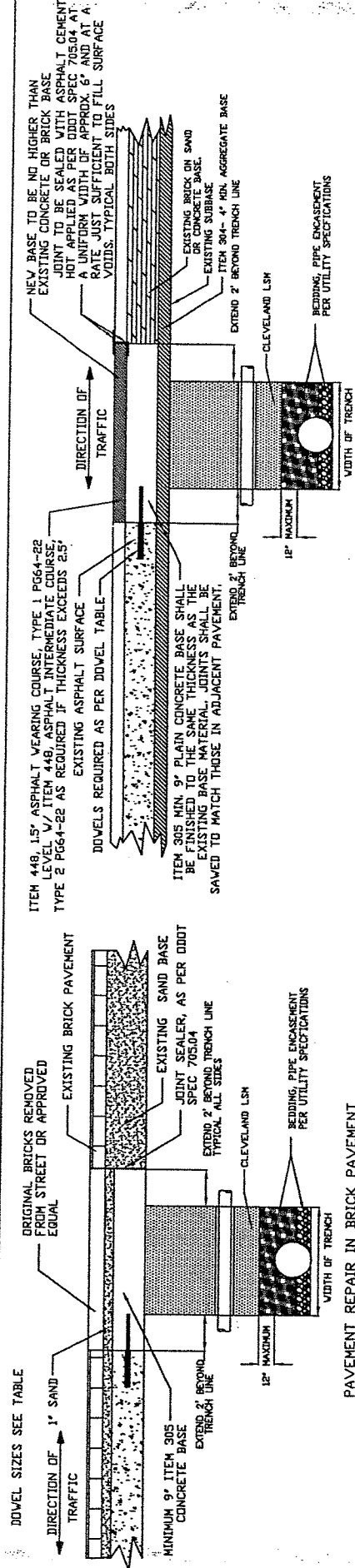
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CITY STANDARD DOCUMENTS AND DRAWINGS

The Contractor shall find attached various related City Standard Documents and Drawings with this packet. These attached documents and drawings are meant to supplement but **DO NOT CANCEL** the requirements stated in this document. The City has taken care to review the Street Opening Permit documents and drawings for consistency, but in the case of any conflicting standards **THE MORE STRINGENT STANDARD WILL APPLY.**

- Street Opening Repair Detail Sheets 1 and 2
- Cleveland Low Strength Mortar (LSM) Requirements
- Utility Clearance Drawings STD. 017 and STD. 018
- Curb Ramp Standard Drawings and Requirements
- Sidewalk Permit Requirements
- Sidewalk and Obstruction Permits
- Maintenance of Traffic Regulations
- Winter Construction Conditions
- Monument Preservation/Restoration Requirements-City Specification D-40 and D-41 and Standard Drawing MB-1C
- Concrete Mix Design Requirements-City Specification D-24



DOVEL TABLE	
PAVEMENT THICKNESS	DIAMETER OF DOVELS
8" OR LESS	1"
9"	1 1/8"
10"	1 1/4"
OVER 10"	AS DIRECTED
DOVELS SHALL BE SPACED EVERY 30"	

- NOTES:
- ALL PAVEMENT OPENINGS SHALL BE SAVED FULL DEPTH AND HAVE SMOOTH VERTICAL FACES. DOVELS SHALL BE REQUIRED, AS PER DOVEL TABLE.
 - CONCRETE REPAVING SHALL BE PERFORMED IN SUCH A MANNER THAT THE ENTIRE LANE AND/OR SLAB IN WHICH THE REPAIR AREA IS LOCATED SHALL BE RESTORED. SHOULD ANY PORTION OF THE REPAIR AREA EXTEND INTO AN ADJACENT LANE AND/OR SLAB, THAT LANE OR SLAB SHALL ALSO BE REPAVED.
 - EXTEND OVERCUT IN LONGITUDINAL DIRECTION TWO FEET (2') ONTO UNDISTURBED SUBGRADE.
 - ASPHALT RESURFACING SHALL BE PERFORMED IN SUCH A MANNER THAT THE ENTIRE LANE IN WHICH THE REPAIR AREA IS LOCATED SHALL BE RESTORED. SHOULD ANY PORTION OF THE REPAIR AREA EXTEND INTO AN ADJACENT LANE, THAT LANE SHALL ALSO BE RESURFACED. THE RESURFACING SHALL TAKE PLACE FROM BEGINNING PROJECT TO END PROJECT (I.E. WORK LIMITS). FOR PAVEMENTS WITH A WIDTH OF 40' OR LESS A LANE SHALL BE CONSIDERED 1/2 THE PAVEMENT WIDTH.
 - BRICKS REMOVED FROM A REPAIR SHALL BE STORED IN A SAFE PLACE BY THE CONTRACTOR FOR REUSE. THE CONTRACTOR WILL BE RESPONSIBLE FOR REPLACING ANY BRICKS THAT WERE STOLEN OR DAMAGED AT NO COST TO THE CITY.
 - ALL NEW BRICKS SUPPLIED BY THE CONTRACTOR MUST FIRST BE APPROVED BY THE CITY BEFORE THEY ARE USED.
 - SAVING: ALL PARTIAL BRICKS SHALL BE SAVED. FURTHER, NO BRICK WILL BE PERMITTED TO BE CUT, FOR REPLACEMENT, TO A LENGTH LESS THAN ONE-HALF ITS ORIGINAL LENGTH. THIS MAY REQUIRE SAVING CUTTING OF ADJACENT UNDISTURBED BRICKS.
 - THE PERIMETER FACES OF THE EXISTING BASE MATERIAL SHALL BE CUT BACK TO AS NEARLY VERTICAL ORIENTATION AS POSSIBLE. IF SHEARING OF THE ADJACENT BASE RESULTS, THE CONTRACTOR SHALL REMOVE ADDITIONAL BRICK AND BASE AS SHOWN IN THE DETAIL.
 - THE MAXIMUM WIDTH OF A BRICK MORTAR JOINT SHALL BE 1/2\"/>
 - MORTARING OF JOINTS: ALL JOINTS SHALL BE MORTARED WITH A 50/50 MIXTURE BY VOLUME OF SAND /CEMENT, TO PROVIDE FOR A FLUSH FINISH. THIS MAY REQUIRE MORE THAN ONE APPLICATION. FURTHER MECHANICAL VIBRATION WILL BE REQUIRED FOR COMPACTION.
 - ALL BACKFILL MATERIALS USED UNDER ANY PAVEMENTS SHALL BE CLEVELAND LSH PLACED FROM THE INITIAL ONE FOOT OVER THE TOP OF UTILITIES, TO THE SUBGRADE.
 - TO PREVENT FLOTATION AND ENTRY OF FLOWABLE FILL INTO ANY OTHER AREAS COVER ALL JOINTS IN CLAY PIPE IN THE TRENCH AREA WITH POLYETHYLENE MATERIAL BEFORE POURING FLOWABLE FILL. REPAIR TECHNIQUES SHALL BE IN ACCORDANCE WITH THE UTILITY COMPANY'S STANDARD REPAIR PROCEDURES.

REVISED 8/3/08

CITY OF CLEVELAND

DEPARTMENT OF PUBLIC SERVICE

DIVISION OF ENGINEERING & CONSTRUCTION

JOMARIE WASK-DIRECTOR OF PUBLIC SERVICE

STREET OPENING REPAIR-SUPPLEMENTAL

DRAWN BY: B. PLIODZINSKAS

SUBMITTED BY: W. MCLAUGHLIN

DATE: 4/8/08

DATE: 4/28/08

APPROVED: [Signature]

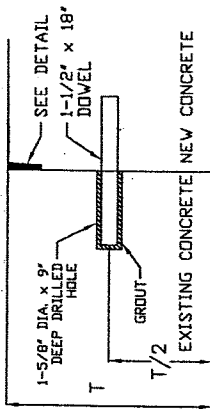
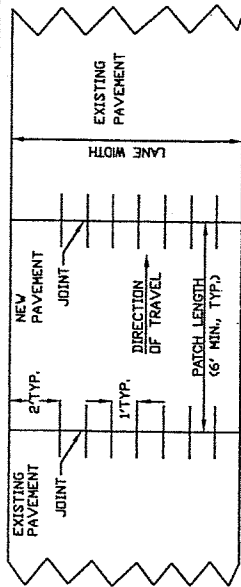
COMMISSIONER OF ENGINEERING AND CONSTRUCTION

DATE: 9/10/08

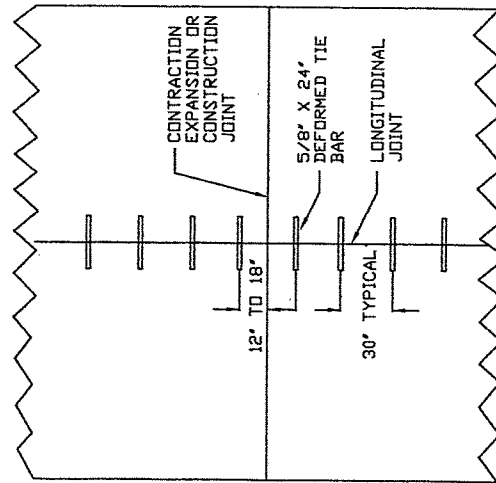
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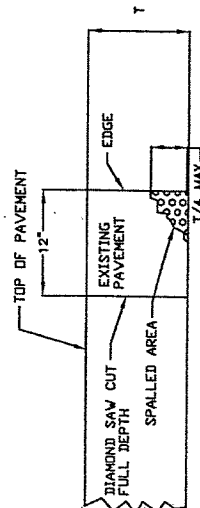
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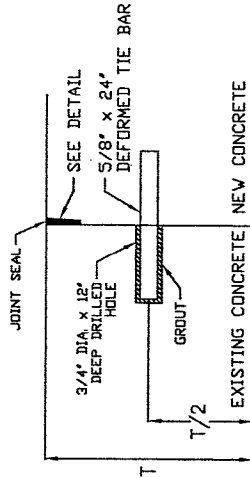
SECTION THROUGH TRANSVERSE JOINT



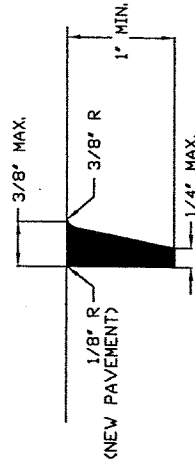
TIE BAR SPACING



ADDITIONAL PAVEMENT REMOVAL



TYPE D (DRILLED TIED LONGITUDINAL) JOINT



GROOVE & SEAL DETAIL

NOTES:

1. ALL JOINTS SHALL BE CONSTRUCTED NORMAL TO THE CENTERLINE OF THE PAVEMENT LANE.
2. ALL DOVEL HOLES SHALL BE DRILLED BY A MECHANICAL DEVICE THAT WILL ALLOW INDEPENDENT ADJUSTMENT OF ALL DRILL SHAFTS IN THE HORIZONTAL AND VERTICAL DIRECTION. THE DEVICE SHALL BE CAPABLE OF DRILLING A MINIMUM OF THREE HOLES AT ONE TIME.
3. ALL SMOOTH DOVELS SHALL BE COATED WITH A THIN LAYER OF OIL OR OTHER 'BOND-BREAKING' MATERIAL AFTER THEY HAVE BEEN INSTALLED IN THE EXISTING PAVEMENT AND JUST PRIOR TO PLACING THE PATCH. ALL DOVELS SHALL BE PLACED PARALLEL TO THE PAVEMENT SURFACE AND THE CENTERLINE OF THE PAVEMENT LANE.
4. ADDITIONAL PAVEMENT REMOVAL IF AFTER THE REMOVAL OF THE PAVEMENT FROM THE AREA TO BE REPAIRED, THE FACE OF THE REMAINING PAVEMENT IS SPALLED OR DETERIORATED FOR A HEIGHT GREATER THAN ONE-FOURTH (1/4) THE THICKNESS OF THE RIGID PAVEMENT, ADDITIONAL REMOVAL SHALL BE MADE AS SHOWN.
5. LONGITUDINAL JOINT: FOR PATCHES 10 FEET OR GREATER IN LENGTH THE LONGITUDINAL JOINT SHALL BE CONSTRUCTED AS PER STANDARD DRAWING. THE SPACING OF THE TIE BARS SHALL BE NO MORE THAN 30' NOR LESS THAN 24'.
6. TYPE D (DRILLED TIED LONGITUDINAL) JOINT: TYPE D JOINTS SHALL BE CONSTRUCTED IN ACCORDANCE WITH DDOT SPEC. 255.05. GROUT SHALL MEET THE REQUIREMENTS OF DDOT SPEC. 255.02. THE USE OF 5/8" EXPANSION ANCHORS, FF-S-325, GROUP VIII, TYPE I OF GROUP II, TYPE 4, CLASS I MAY BE USED IN LIEU OF THE 5/8" x 24" DEFORMED TIE BAR AND SHALL BE INSTALLED ACCORDING TO THE MANUFACTURER'S RECOMMENDATIONS. THE USE OF SELF DRILLING EXPANSION SHIELD ANCHORS, FF-S-325, GROUP III, TYPE I (A) AND (C) SHALL NOT BE PERMITTED.
7. SEALING JOINTS: SAVED OR HAND FORMED JOINTS SHALL BE SEALED WITH DDOT 705.04 JOINT SEALER.

REVISED 8/23/08

CITY OF CLEVELAND

DEPARTMENT OF PUBLIC SERVICE
DIVISION OF ENGINEERING & CONSTRUCTION
JONAHIE WASK-DIRECTOR OF PUBLIC SERVICE
STREET OPENING REPAIR
NOT TO SCALE

DRAWN BY: B. BUDZINSKAS DATE: 4/8/08
SUBMITTED BY: W. MC LAUGHLIN DATE: 4/8/08

DATE: 4/8/08

APPROVED: [Signature]

COMMISSIONER OF ENGINEERING AND CONSTRUCTION

FILE NO.: PR 1 SHEET 2/2

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Frequently Asked Questions on Flowable Fill

What is flowable fill?

Flowable fill is a self-compacting, cementous material used as backfill in place of compacted granular material. It consists of a combination of cement, fly ash, fine aggregate (sand) and water. **For the purposes of discussion, fly ash is prohibited in flowable fill mix designs for use in the City of Cleveland.**

How will the use of flowable fill affect backfilling trenches in excess of twenty-five feet?

The practice now used is to backfill with material as the trench box is pulled forward. **Flowable fill can be used by using a three sided trench box.**

Can flowable fill be installed using the same method used with granular material?

Probably not because of the characteristics and nature of flowable fill. Additional caution must be exercised to insure material does not "run into the trench". This can be accomplished by setting a bulkhead in front of the pipe (the same method used at the end of the day when work has ended) and placing the material.

Will flowable fill seep into open joints, around parts and underground vaults?

Open joints and holes in vaults should be bulkheaded or wrapped with visqueen to prevent seepage. Bolts and other mechanical parts should also be wrapped to easily gain access for future repair.

How can backfilling areas with valve boxes (Box Extensions have a sloppy fit and tend to shift during backfill around the operating nut and bypass piping).

Visqueen could also be used in this instance to isolate around the operating nut and bypass pipe, at which point the backfilling operation could begin.

Large excavations with valve boxes in the middle require a mechanism for stabilizing the extension while installing material to keep the extension lined up.

Flowable fill does not necessarily have to be ordered at a high slump (8"-10"). Flowable fill with a lower slump could be used to stabilize the extension, after which the slump can be increased.

Can there be a material change if utility ducts are encountered when using flowable fill?

If flowable fill is used in the construction of water or sewer lines and fiber optic cables (for example) are encountered, the contract does not have to change to a bedding material. The flowable fill will provide all of the support needed for the exposed pipe or conduit.

The same material is used to protect electrical and fiber optic duct banks, using this material will limit protection when excavating.

Electrical duct banks and fiber optic duct banks should be encased in concrete, not flowable fill.

If wrapping pipes is necessary, who assumes responsibility for wrapping pipes of others?

This was an issue with the water department due to fly ash in the mixture. **Specifying a non fly ash material will eliminate the need to wrap any pipe unless there is a hole in the pipe.**



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In this instance, the contractor should protect or repair the hole and notify the owner of the utility of the hole.

What if unforeseen obstacles are encountered during construction such as Trolley tracks.

If you are working under trolley tracks, flowable fill will fill any voids created by tunneling under the tracks. **You will get better compaction than you could possibly achieve with granular backfill.**

Useful life of material delivered to site.

Research indicates the useful life is approximately 2.5 hours after the material is delivered. Set time can be altered in the mix design. Proper planning should eliminate any issues with using old/expired materials.

Is there a delay/lag time inherent in using the material?

Most ready-mix producers would be able to handle the delivery needs of the various City of Cleveland departments for flowable fill. The delivery of material would be no different than ordering limestone or sand from a supplier and waiting for the material to be delivered. **Concrete base can be poured as soon as it sets up, usually between two and four hours.**

Use of flowable fill requires a contract in place with a concrete company as well as notification for delivery of material.

The mix design specified by the City can be made by any concrete plant in the county. Notification for delivery of material is the same as for concrete.

Number of trucks needed to supply material daily?

This is a scheduling issue for the suppliers. Similar to the supply needs when ordering different types of concrete mixes.

Ordering of materials (irregular shaped holes)

Any hole, either square or irregularly shaped, has to be rough measured for material. After such measurements have been taken, the concrete dispatcher can calculate the amount of flowable fill which is needed.

Can trucks be washed out in the same manner as concrete trucks when excess material is ordered?

The truck can wash its chute out right in the hole. There is minimal wash-out with flowable fill material.

How difficult is hand digging in a trench backfilled with flowable fill.

All flowable fill can be designed to meet the City's strength requirements. Any strengths between 50 PSI and 100 PSI are very easy to hand dig and would also need less re-excavation. The hole would be more stable with flowable fill. The other utilities in the immediate area would also remain secure under any re-excavation.

Difficulty excavating in flowable fills trenches and locating existing utilities without damage.



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When flowable fill is designed correctly utilities not encased are easier to find. Dirt is not a stable material especially when wet from ground water. Excavation causes dirt to move and can result in damage to utilities that are not encased as well.

Leaks travel the pipe and are harder to find. The leaks appear where the flowable fill ends and has a tendency to push up through the soil.

Flowable fill causes the area by a leak to be less permeable making it more likely for the water to push up instead of traveling the pipe. **This process makes it easier to find a leak.**

Test rods are hard to pound in where flowable fill is used this extends the time to find and repair leaks

The proper mix design from 50 PSI to 100 PSI would eliminate the problem of pounding in the test rods.

Test holes need should be drilled in areas where undermining for air relief.

When undermining exists, it is impossible to properly compact granular fill, this will cause future road collapses. A test hole for air relief will ensure the undermining is properly filled with flowable fill. Routine undermining from trench or excavation should be cut out in accordance with the City's roadway repair restoration guidelines. **Contractors should contact the Division of Engineering & Construction for special instructions if large areas of undermined pavement is encountered.**



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"Cleveland LSM"
Flowable Fill Specification for Utility Trenches

Part I: Certificate of Compliance

Material must come from a plant with a current Certificate of Compliance demonstrating the ability of the mix design to meet the specified requirements. Certificates in excess of one year will not be accepted. Certificates must contain the name of supplier, date, contract number and mix design data on each delivery ticket.

Part II: Materials

All materials shall conform to the applicable requirements stated herein.

1. Cement shall be ASTM C-150 Type I.
2. **The use of Fly Ash is strictly prohibited.**
3. Fine Aggregate shall conform to ODOT Specification 703.03 Fine Aggregate for Mortar or Grout. (ODOT Construction and Materials Specifications most current edition). The use of spent foundry sand or core sand is strictly prohibited.

Part III: Performance Enhancing Admixture

An air-enhancing admixture shall be incorporated in the mix that will have the effect of lowering the water/cement ratio to between 95 and 105 lbs/cubic foot. The air entrained content for the mix shall be 30% to eliminate/minimize the excessive water and segregation. Compressive strengths shall have a range of 50 PSI to 80 PSI at 28 days will be required if additional excavation by machine or hand is required.

Approved Admixtures

Manufacturer	Product Name
a) Master Builders	Rheofill
b) Axim	Flow Air
c) W.R. Grace	DaraFill
d) Or approved equal	

Part IV: Flowable Fill Mix Design

The mix design shall be proportioned as follows:

Cement (Type I)	50 lbs/cubic yard
Sand (SSD)	2475 lbs./cubic yard
Water	25 gallons/cubic yard
Admixture (Air)	3 oz/cubic yard

Variations of the aforementioned mix design are strictly prohibited.

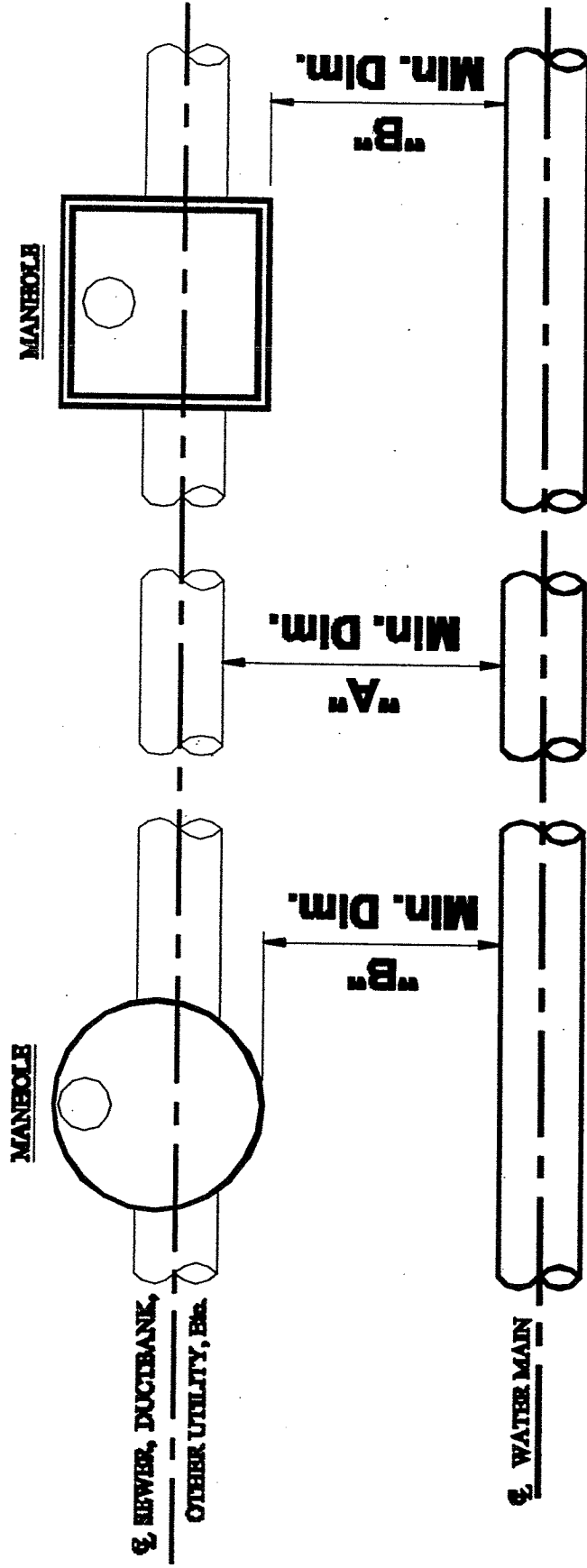


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Part V: Application

- Flowable fill shall begin 12 inches above the top of pipe and continue in the trench to the concrete base.
- Material for pipe bedding and pipe zone to a maximum depth of 12 inches over the top of pipe shall be as specified by the utility.
- Exposed bolts and valves exposed in the trench should be wrapped with polyethylene material conforming to ODOT 748.07 (8 mil thick).
- Cover all joints in clay pipe in the trench area with polyethylene material before pouring flowable fill. Repair all observed openings in any pipe or manhole in the trench area prior to backfilling with flowable fill. Repair techniques shall be in accordance with the utility company's standard repair procedures.
- Contact the respective utility owner for repair procedures.



PLAN VIEW

- SEE STD-018 FOR PROFILE VIEW -

	HORIZONTAL CLEARANCE	STORM SEWER	SANITARY SEWER	GAS, DUCTBANK, OTHER UTILITY, Etc.
WHEN BOTTOM OF UTILITY PIPE IS AT OR ABOVE BOTTOM OF WATER MAIN	"A"	4'-0"	10'-0" MIN.	3'-0"
	"B"	4'-0"	7'-0" MIN.	3'-0"
WHEN BOTTOM OF UTILITY PIPE IS BELOW BOTTOM OF WATER MAIN	"A"	5'-0"	10'-0" MIN.	5'-0"
	"B"	5'-0"	7'-0" MIN.	5'-0"

CLEARANCE FOR UTILITIES

STD-017

NOT TO SCALE

DATE: 12-4-97

BY: RSK

GRADE

SEWER, DUCTRANK,
OTHER UTILITY, Etc.

WATER MAIN

SEWER OR
OTHER UTILITY, Etc.

PROFILE VIEW

- SEE STD-017 FOR PLAN VIEW -

VERTICAL CLEARANCE	SANITARY SEWER LESS THAN 24"	SANITARY SEWER 24" & LARGER	STORM SEWER, DUCTRANK, GAS, OTHER UTILITY LESS THAN 24"	STORM SEWER, DUCTRANK, GAS, OTHER UTILITY 24" & LARGER	REMARKS
"A"	18" Min.	*18" Min.	**12"	*12"	*WATER MAIN IN CASING: CLEARANCE TO TOP OF CASING
"B"	18" Min.	**18" Min.	12"	**12"	**CLEARANCE TO TOP OF UTILITY OR TOP OF CASING; WHEN UTILITY IS IN CASING

***INCREASE TO 18" WHEN WIDTH OR
DIAMETER OF UTILITY IS GREATER THAN
DIAMETER OF WATER MAIN

CLEARANCE FOR UTILITIES

NOT TO SCALE

STD-018

DATE: 12-4-97

BY: RSK

ADA Curb Ramp Requirements-Street Opening Permits

1. ADA compliant curb ramps shall be installed at intersections and other major pedestrian crossing points where adjacent curb and sidewalk are being constructed, reconstructed, and/or altered due to new roadway/sidewalk, street opening, and utility trench construction.
2. ADA compliant curb ramps shall be installed to replace or upgrade existing pedestrian curb ramps at intersections and other major pedestrian crossing points due to new roadway/sidewalk, street opening and utility trench construction.
3. A companion ADA compliant curb ramp shall be installed for the opposite side of the street for each new ramp regardless of project or other work limits.
4. All material and workmanship shall be in accordance with the Ohio Department of Transportation, Construction and Material Specifications, Latest Edition unless modified by the most recent City of Cleveland standard "D" specifications and Standard Drawings. The ODOT, Construction and Materials Specifications shall govern all construction items that are a part of this plan except when such specifications are modified by the General Notes, Construction Details or City of Cleveland specifications set forth herein.
5. The Contractor shall be responsible for Curb Ramp and sidewalk layout. Contractor shall be responsible for having the finished work conform to the lines, grades, elevations and dimensions to meet ADA Requirements. Any inspection or checking of the Contractor's layout by the City and the acceptance of all or any part of it shall not relieve the Contractor of its responsibility to secure proper dimensions, grades and elevations of the several parts of the work. The Contractor shall use competent personnel and suitable equipment for the layout work required.
6. **Truncated Domes For Ramps: All curb ramps shall have a Distinctively-Textured walking surfaces, detectable by cane, to warn pedestrians with visual impairments of an impending hazard on the circulation route ahead. The detectable warnings shall consist of truncated domes with a diameter of nominal 0.9 IN. (23 MM), a height of nominal 0.2 IN. (60 MM). The detectable warnings shall be 24 IN. (610 MM) in the direction of travel and extend the full width of the curb ramp or flush surface, except the flare surface. The location of the detectable warning shall be located so that the edge nearest the curb line or other potential hazard is 6 to 8 Inches (150 to 205 MM) from the curb line or other potential hazard.**

ADA Curb Ramps (Cont.)

Truncated domes shall be tinted in a contrasting color to be approved by the Section Chief of Construction, using a single coat tinted curing and sealing compound. Said material shall be Polyseal, as manufactured by Chemmasters or approved equal at a coverage rate of 300-400 Sq. Ft./Gallon.

Cost of stamping and tinting the truncated domes to the curb ramps is incidental to the curb ramp layout pay item and no additional cost will be paid by the City.

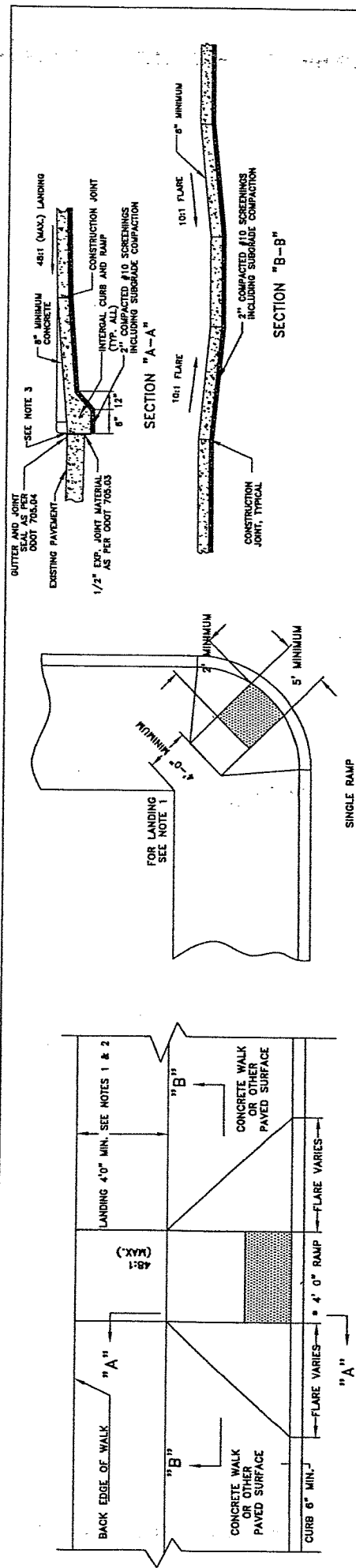
7. The attached drawings for the different types of ADA compliant curb ramps are for the most prevalent situations. However, under circumstances that are not detailed in the drawings, it is the contractor's responsibility to layout the curb ramp to meet ADA Requirements.
8. Dimensions are based on a 6-inch curb height, and shall be proportionally adjusted for other curb heights.
9. The thickness of concrete in the Curb Ramp, including flared sides and rolled edges, shall be as per City Specification or as directed by the Section Chief of Construction.
10. Ramps specified at 8-inch thickness shall be 8-inch thick everywhere in the ramp including the flared areas.
11. A 3-foot minimum width ramp may be used when existing space prohibits the construction of a 4-foot wide ramp with the approval of the Section Chief of Construction.
12. The ramp slope shall not exceed 12:1 at any Curb Ramp location where pedestrian traffic must travel along or across the Curb Ramp.
13. Cross-slope of Curb Ramps and sidewalks shall not exceed 48:1.
14. Transitional sections of sidewalk, that do not meet current standards and specifications, shall be installed to connect the new or replaced Curb Ramps. These transitions segments of sidewalk shall provide a smooth transition between the existing and new concrete.
15. All existing manhole covers, valve boxes, gratings, etc., that are located within the pedestrian right-of-way, shall be flushed mounted with the walking surface. Existing obstructions shall not have more than $\pm\frac{1}{4}$ inch difference in elevation than the surrounding surface.
16. The location of Curb Ramps in new construction shall take precedence over the location of drainage structures, guardrails and traffic, utility or light poles.

ADA Curb Ramps (Cont.)

17. The bottom edge of the Curb Ramp shall be flush with the edge of the adjacent pavement and gutter line.
18. Curb Ramps shall be aligned with the sidewalk and the crosswalk where possible. If alignment is not possible the Contractor is to notify the Section Chief of Construction prior to proceeding with construction activities at this location.
19. Crosswalk markings placed in conjunction with Curb Ramp Types CR-3, CR-7, and CR-9 shall be located such that, at a minimum, the Curb Ramp, exclusive of the flared sides or rolled edges, shall be completely contained with the crosswalk.
20. Crosswalk markings placed in conjunction with Curb Ramp Types CR-1, CR-2, CR-4, CR-5, CR-6, CR-8, CR-10, and CR-11 shall be located at least 2-feet beyond the outside of the flared sides.
21. The rolled edges shall be constructed so that they are parallel to the direction of pedestrian traffic.
22. Rolled edges shall only be used adjacent to tree lawns, utility strips and large obstructions such as signal controllers.
23. The normal gutter flow line shall be maintained throughout the Curb Ramp area, and appropriate drainage structures shall be used, as needed, to intercept the flow of water prior to the Curb ramp area. Positive drainage shall also be provided to carry water away from the intersection of the Curb Ramp and gutter line.
24. Surface texture of Curb Ramps shall be coarse-broomed or other approved method transverse to ramp slope (minimum 1/8 inch – maximum 3/16 inch deep) beyond the TRUNCATED DOMES part of the ramp.
25. Curb poured separately from the ramp shall be separated from the ramp by ½ inch pre-molded expansion joint with ½ inch joint filler per ODOT CMS 705.04.
26. When less than 3-feet of a curb section remains after the curb cut is located, it shall also be removed and replaced. New curb shall be constructed in a minimum of 3-foot sections and a maximum of 5-foot sections, or as directed by the Section Chief of Construction.
27. Fill for sidewalk and Curb Ramps, if required, shall be sand and gravel sub-base compacted in layers not exceeding 2-inches. The cost for the sub-base is considered incidental to ramp construction and no additional cost will be paid for by the City.

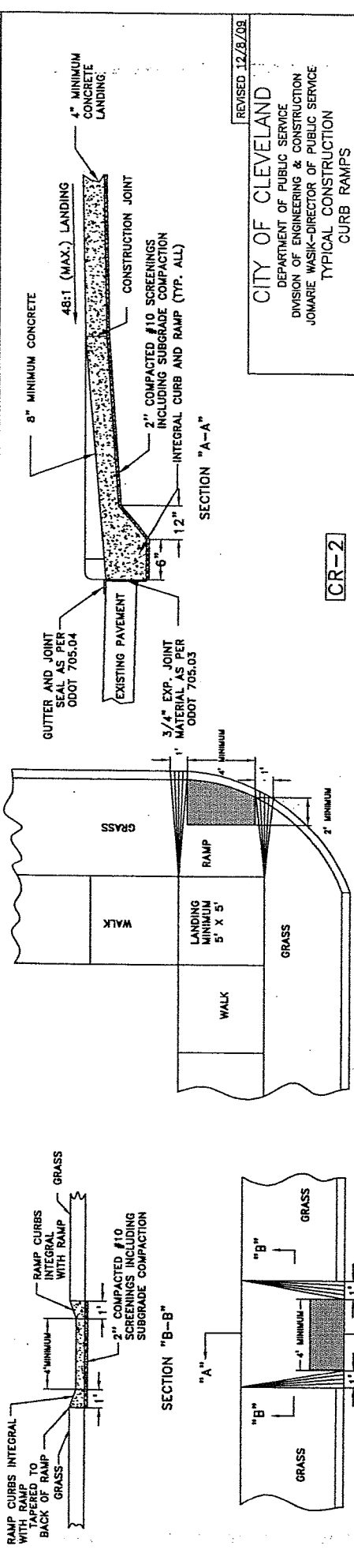
ADA Curb Ramps (Cont.)

28. Curb Ramps and surrounding concrete walk shall be constructed of Portland cement concrete, City of Cleveland 650 mix. unless directed otherwise by the Section Chief of Construction.
29. ½ inch pre-molded expansion material shall be placed whenever new concrete touches existing construction ½ inch joint filler per ODOT CMS 705.04.
30. Forms shall consist of wood or metal and extend for the full depth of the concrete, and of sufficient strength to resist the pressure of the concrete without springing.
31. An approved curing compound shall be properly applied immediately after finishing the concrete.
32. The Acting Section Chief of Construction contact number is (216) 664-2391 (Office) or (216) 244-5636 (Cell) for additional information or approvals.



CR-1

- NOTES:
- 1) MAY BE REDUCED TO 3'-0" IN EXISTING SIDEWALK IF THE LANDING IS CONSTRAINED ALONG THE BACK EDGE.
 - 2) WHERE THE LANDING IS LESS THAN 4'-0", THE RAMP FLARE SHALL BE INCREASED TO 12:1.
 - 3) GUTTER SEAL, 705.04, 4" WIDE THE BOTTOM EDGE OF THE ADJACENT PAVEMENT AND GUTTER LINE.
 - 4) SURFACE TEXTURE OF ALL RAMPS SHALL BE OBTAINED BY COARSE BROOMING TRANSVERSE TO THE RAMP SLOPES AS DIRECTED BY THE ENGINEER AND SHALL BE ROUGHER THAN ADJACENT WALK.



CR-2

- NOTES:
- 1-THE BOTTOM EDGE OF THE CURB RAMP SHALL BE FLUSH WITH THE EDGE OF THE ADJACENT PAVEMENT AND GUTTER LINE.
 - 2-SURFACE TEXTURE OF ALL RAMPS SHALL BE OBTAINED BY COARSE BROOMING TRANSVERSE TO THE RAMP SLOPES AS DIRECTED BY THE ENGINEER AND SHALL BE ROUGHER THAN ADJACENT WALK.
 - 3-GUTTER SEAL, 705.04, 4" WIDE THE BOTTOM EDGE OF THE ADJACENT PAVEMENT AND GUTTER LINE.

REVISED 12/8/08

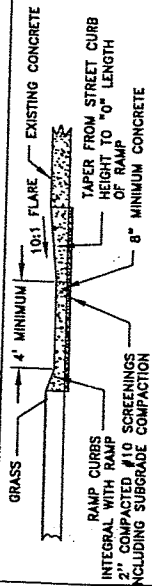
CITY OF CLEVELAND
DEPARTMENT OF PUBLIC SERVICE
DIVISION OF ENGINEERING & CONSTRUCTION
JOMARIE WASIK-DIRECTOR OF PUBLIC SERVICE

TYPICAL CONSTRUCTION
CURB RAMPS
NOT TO SCALE

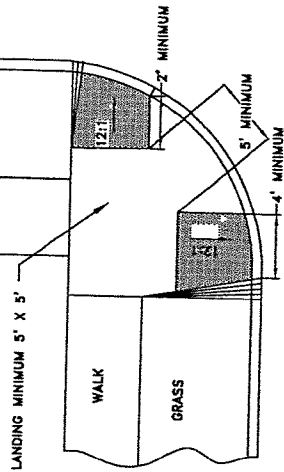
DRAWN BY: B. BLODZINSKAS
SUBMITTED BY: W. McLAUGHLIN
APPROVED: [Signature]
DATE: 4/8/08
DATE: 4/8/08
DATE: 4/14/08

COMMISSIONER OF ENGINEERING AND CONSTRUCTION

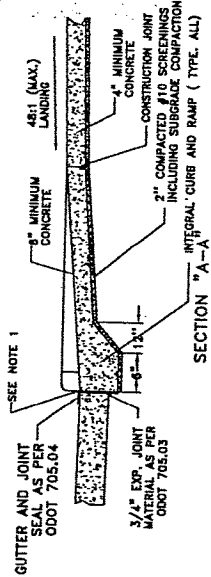
FILE NO.: CR-1 SHEET 1/6



SECTION "B-B"



LAYOUT WHEN OBSTRUCTION PRESENT, AS DIRECTED BY THE ENGINEER

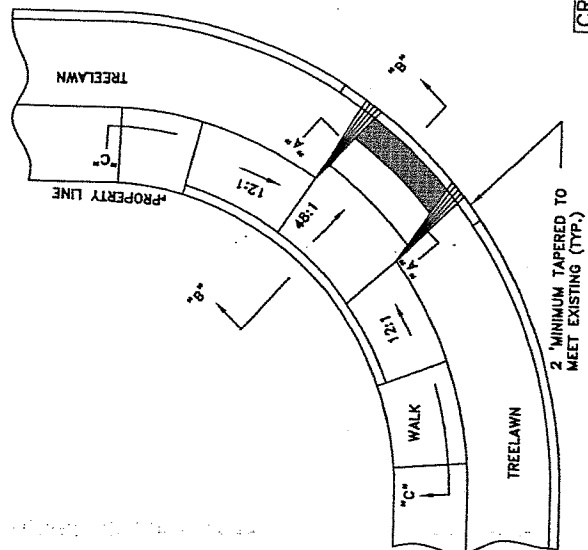


SECTION "A-A"

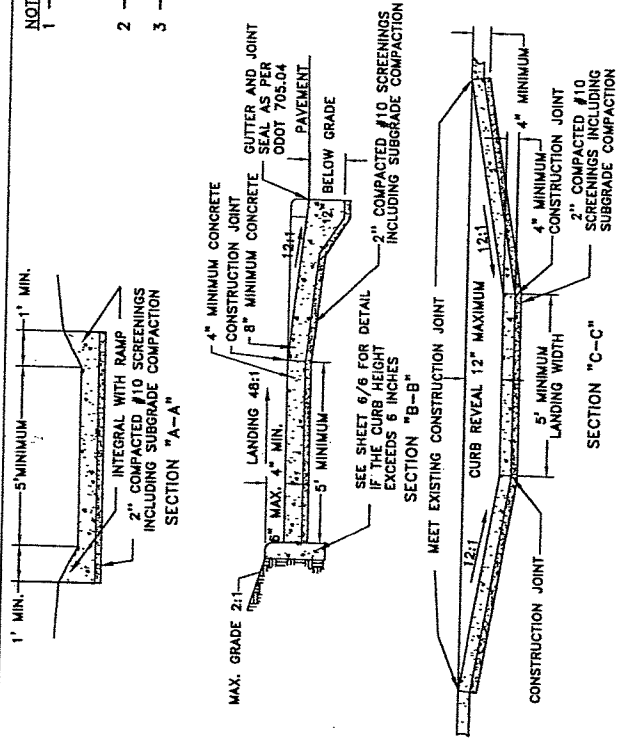
NOTES:

- 1-THE BOTTOM EDGE OF THE CURB RAMP SHALL BE FLUSH WITH THE EDGE OF THE ADJACENT PAVEMENT AND GUTTER LINE.
- 2-SURFACE TEXTURE OF ALL RAMPS SHALL BE OBTAINED BY COARSE BROOMING TRANSVERSE TO THE RAMP SLOPES AS DIRECTED BY THE ENGINEER AND SHALL BE ROUGHER THAN ADJACENT WALK.
- 3-BARRIER CURB INSTALLATION ONLY WHEN ADJACENT OBSTACLE PRESENT AND AS DIRECTED BY THE ENGINEER

CR-3



CR-4



SECTION "C-C"

NOTES:

- 1 - WHERE A ROLLED CURB EXCEEDS SIX INCHES ABOVE THE WALK, THE CONTRACTOR SHALL INSTALL TYPE "6" CURB (6" X 18"). ROLLED CURB SHALL BE INSTALLED ONLY AT THE DIRECTION OF THE ENGINEER.
- 2 - THE BOTTOM EDGE OF THE CURB SHALL BE FLUSH WITH THE EDGE OF THE ADJACENT PAVEMENT AND GUTTER LINE.
- 3 - THE SURFACE TEXTURE OF ALL RAMPS SHALL BE OBTAINED BY COARSE BROOMING TRANSVERSE TO THE RAMP SLOPES AS DIRECTED BY THE ENGINEER AND SHALL BE ROUGHER THAN ADJACENT WALK.

REVISED 12/8/08

CITY OF CLEVELAND

DEPARTMENT OF PUBLIC SERVICE
DIVISION OF ENGINEERING & CONSTRUCTION
JOMARE WASK-DIRECTOR OF PUBLIC SERVICE

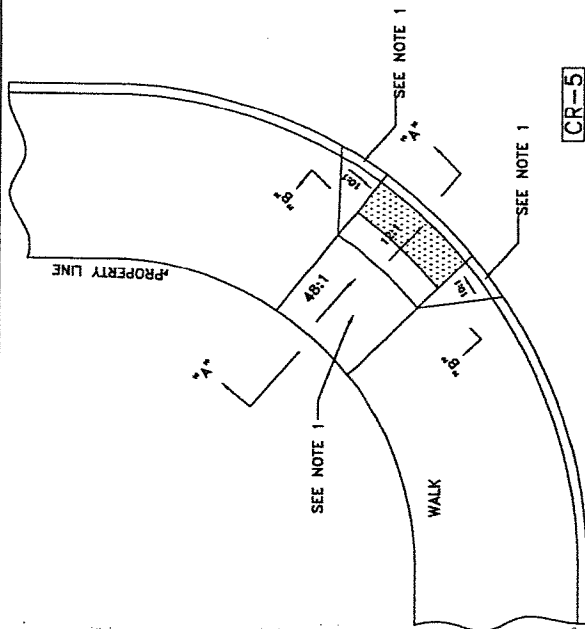
TYPICAL CONSTRUCTION
CURB RAMPS
NOT TO SCALE

DRAWN BY: R. PLIODZINSKAS
SUBMITTED BY: W. MCLAUGHLIN
DATE: 4/28/08
DATE: 4/28/08

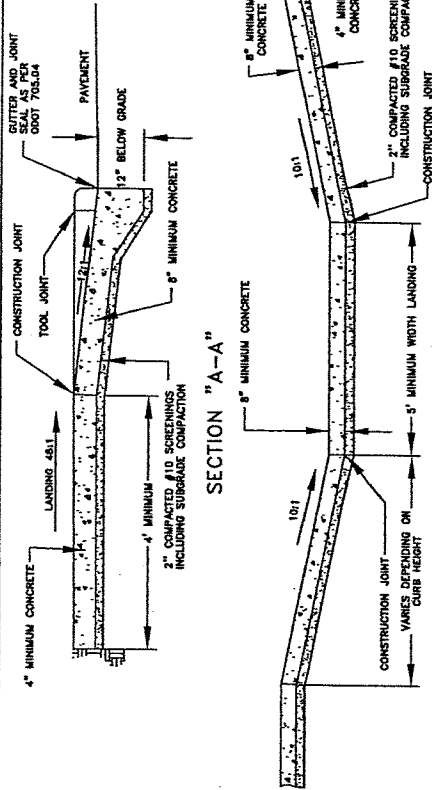
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DATE: 9/14/08
COMMISSIONER OF ENGINEERING AND CONSTRUCTION

FILE NO.: CR 1
SHEET 2/6

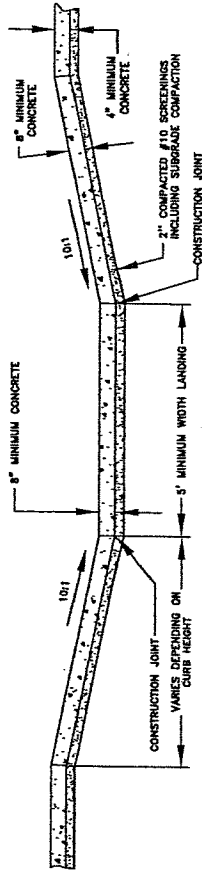
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CR-5



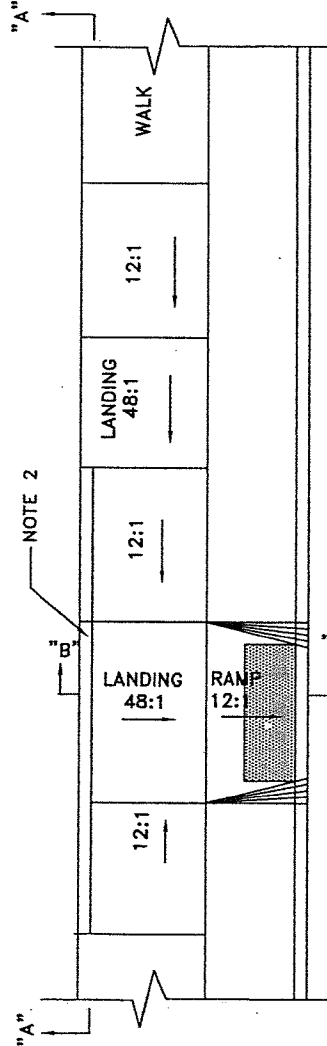
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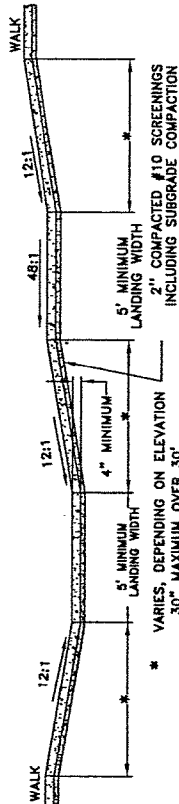
SECTION "B-B"

NOTES:

- 1 - WHERE THE LANDING IS LESS THAN 4'-0" THE RAMP FLARE SHALL BE INCREASED TO 12:1.
- 2 - SURFACE TEXTURE OF ALL RAMP FLARE SHALL BE OBTAINED BY COARSE BROOMING TRANSVERSE TO THE RAMP SLOPES AS DIRECTED BY THE ENGINEER AND SHALL BE ROUGHER THAN ADJACENT WALK.
- 3 - THE BOTTOM EDGE OF THE CURB RAMP SHALL BE FLUSH WITH THE EDGE OF THE ADJACENT PAVEMENT OR GUTTER LINE.
- 4 - GUTTER SEAL, 705.04, 6" WIDE THE BOTTOM EDGE OF THE ADJACENT PAVEMENT AND GUTTER LINE.



CR-6



SECTION "A-A"

SECTION "B-B"

SECTION "C-C"

SECTION "D-D"

SECTION "E-E"

SECTION "F-F"

SECTION "G-G"

SECTION "H-H"

SECTION "I-I"

SECTION "J-J"

SECTION "K-K"

SECTION "L-L"

SECTION "M-M"

SECTION "N-N"

SECTION "O-O"

SECTION "P-P"

SECTION "Q-Q"

SECTION "R-R"

SECTION "S-S"

SECTION "T-T"

SECTION "U-U"

SECTION "V-V"

SECTION "W-W"

SECTION "X-X"

SECTION "Y-Y"

SECTION "Z-Z"

NOTES:

- 1 - THE BOTTOM EDGE OF THE CURB RAMP SHALL BE FLUSH WITH THE EDGE OF THE ADJACENT PAVEMENT OR GUTTER LINE.
- 2 - WHERE A ROLLED CURB EXCEEDS SIX INCHES ABOVE THE WALK, THE CONTRACTOR SHALL INSTALL TYPE "B" CURB (6" X 18").
- 3 - SURFACE TEXTURE OF ALL RAMP FLARE SHALL BE OBTAINED BY COARSE BROOMING TRANSVERSE TO THE RAMP SLOPES AS DIRECTED BY THE ENGINEER AND SHALL BE ROUGHER THAN ADJACENT WALK.

REVISED 12/8/08

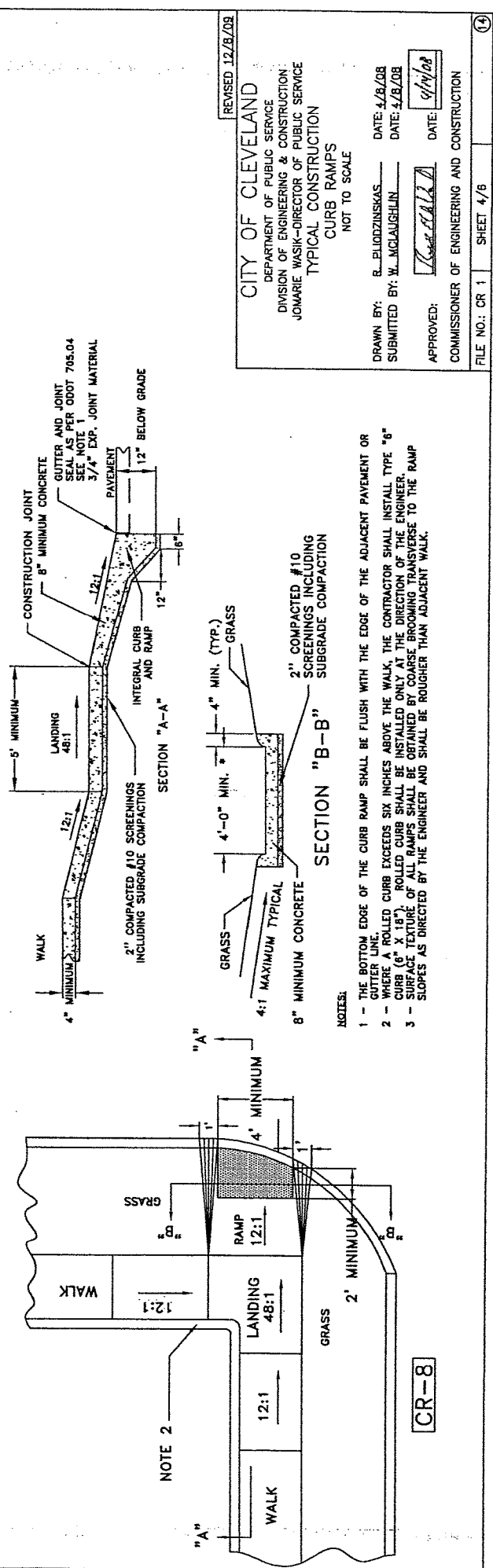
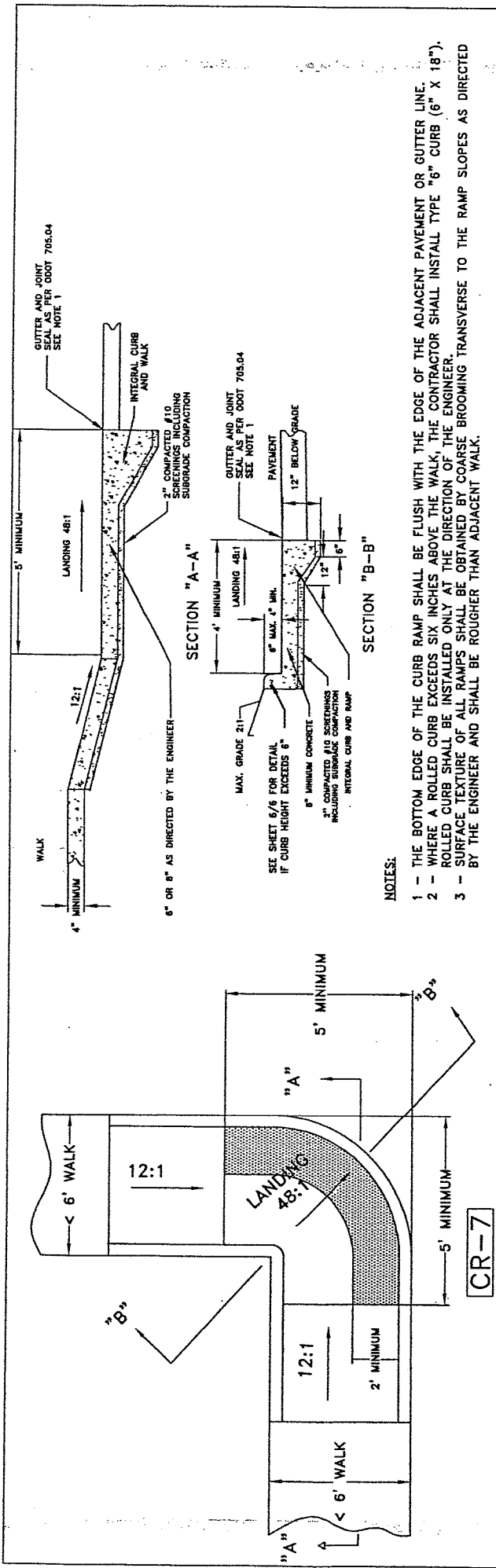
CITY OF CLEVELAND

DEPARTMENT OF PUBLIC SERVICE
DIVISION OF ENGINEERING & CONSTRUCTION
JONAH WASK-DIRECTOR OF PUBLIC SERVICE

TYPICAL CONSTRUCTION
CURB RAMPS
NOT TO SCALE

DRAWN BY: B. ELLODZINSKAS
SUBMITTED BY: W. MCLAUGHLIN
APPROVED: [Signature]
DATE: 4/8/08
DATE: 4/8/08
COMMISSIONER OF ENGINEERING AND CONSTRUCTION

FILE NO.: CR 1 SHEET 3/6



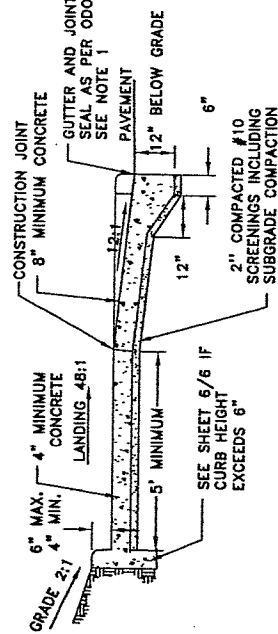
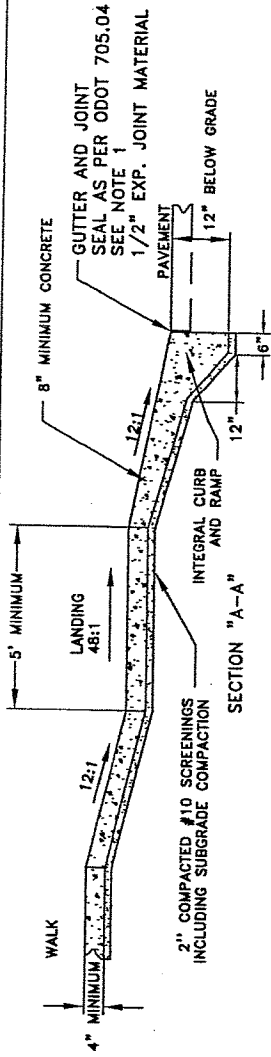
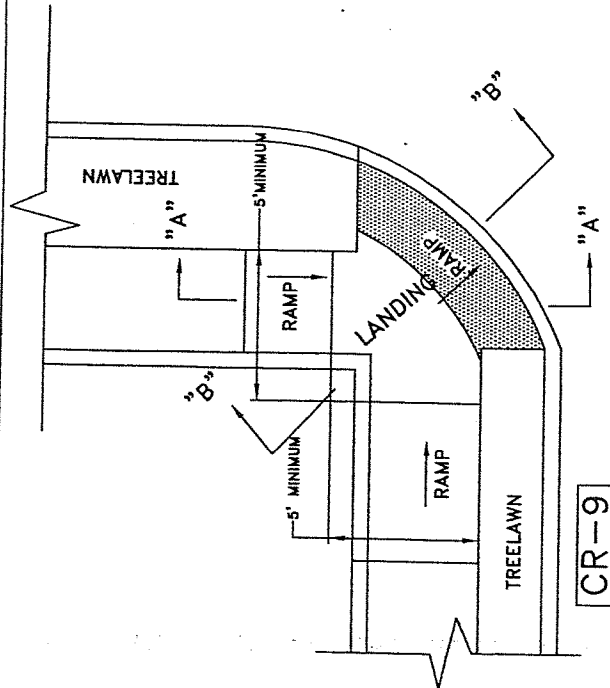
REVISED 12/8/08

CITY OF CLEVELAND
 DEPARTMENT OF PUBLIC SERVICE
 DIVISION OF ENGINEERING & CONSTRUCTION
 JONAMIE WASIK-DIRECTOR OF PUBLIC SERVICE

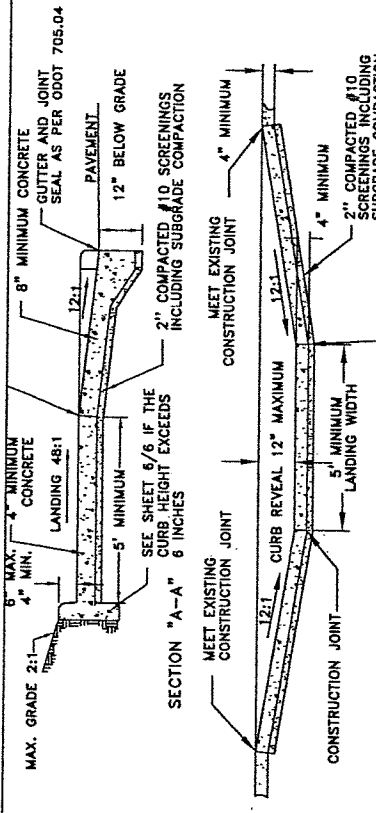
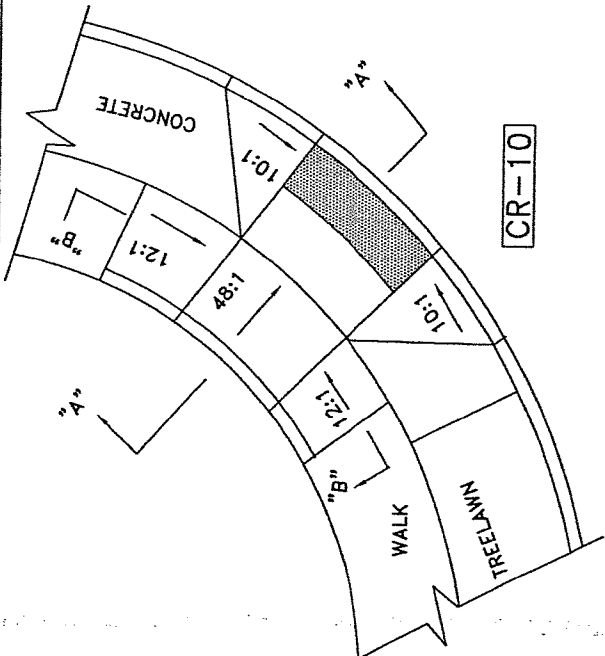
TYPICAL CONSTRUCTION CURB RAMPS
 NOT TO SCALE

DRAWN BY: B. ELIADZINSKAS DATE: 4/8/08
 SUBMITTED BY: W. MCLAUGHLIN DATE: 4/8/08
 APPROVED: [Signature] DATE: 9/11/08
 COMMISSIONER OF ENGINEERING AND CONSTRUCTION

FILE NO.: CR 1 SHEET 4/8



- NOTES:
- 1 - THE BOTTOM EDGE OF THE CURB RAMP SHALL BE FLUSH WITH THE EDGE OF THE ADJACENT PAVEMENT OR GUTTER LINE.
 - 2 - WHERE A ROLLED CURB EXCEEDS SIX INCHES ABOVE THE WALK, THE CONTRACTOR SHALL INSTALL TYPE "6" CURB (6" X 18"). ROLLED CURB SHALL BE INSTALLED ONLY AT THE DIRECTION OF THE ENGINEER.
 - 3 - SURFACE TEXTURE OF ALL RAMPS SHALL BE OBTAINED BY COARSE BROOMING TRANSVERSE TO THE RAMP SLOPES AS DIRECTED BY THE ENGINEER AND SHALL BE ROUGHER THAN ADJACENT WALK.



- NOTES:
- 1 - WHERE A ROLLED CURB EXCEEDS SIX INCHES ABOVE THE WALK, THE CONTRACTOR SHALL INSTALL TYPE "6" CURB (6" X 18"). ROLLED CURB SHALL BE INSTALLED ONLY AT THE DIRECTION OF THE ENGINEER.
 - 2 - THE BOTTOM EDGE OF THE CURB SHALL BE FLUSH WITH THE EDGE OF THE ADJACENT PAVEMENT AND GUTTER LINE.
 - 3 - SURFACE TEXTURE OF ALL RAMPS SHALL BE OBTAINED BY COARSE BROOMING TRANSVERSE TO THE RAMP SLOPES AS DIRECTED BY THE ENGINEER AND SHALL BE ROUGHER THAN ADJACENT WALK.

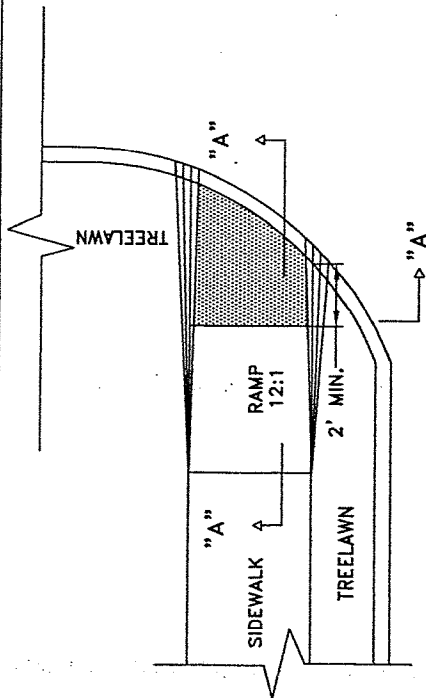
REVISED 12/8/08

CITY OF CLEVELAND
 DEPARTMENT OF PUBLIC SERVICE
 DIVISION OF ENGINEERING & CONSTRUCTION
 JOMARIE WASK-DIRECTOR OF PUBLIC SERVICE

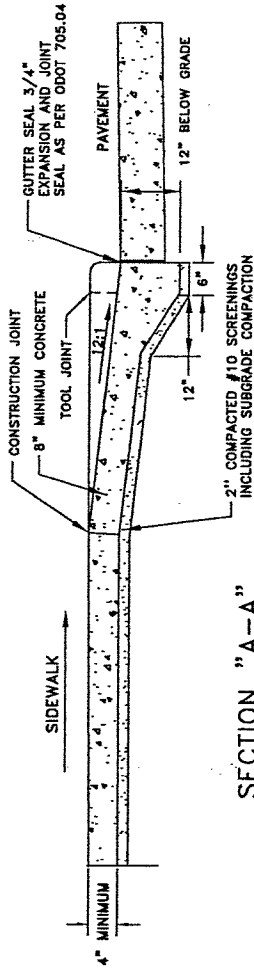
TYPICAL CONSTRUCTION CURB RAMPS
 NOT TO SCALE

DRAWN BY: R. BLUDZINSKAS DATE: 4/8/08
 SUBMITTED BY: W. McLAUGHLIN DATE: 4/8/08
 APPROVED: [Signature] DATE: 4/14/08
 COMMISSIONER OF ENGINEERING AND CONSTRUCTION

FILE NO.: CR 1 SHEET 5/6



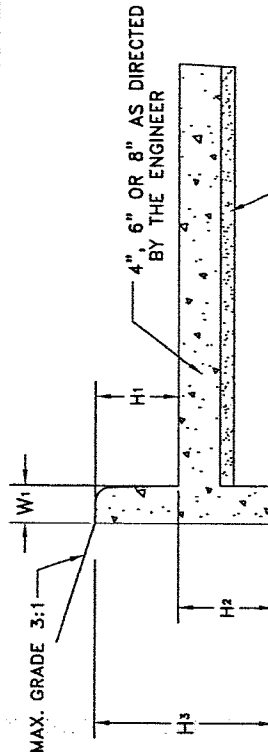
CR-11



SECTION "A-A"

NOTES:

- 1 - WHERE A ROLLED CURB EXCEEDS SIX INCHES ABOVE THE WALK, THE CONTRACTOR SHALL INSTALL TYPE "6" CURB (6" X 18"). ROLLED CURB SHALL BE INSTALLED ONLY AT THE DIRECTION OF THE ENGINEER.
- 2 - THE BOTTOM EDGE OF THE CURB SHALL BE FLUSH WITH THE EDGE OF THE ADJACENT PAVEMENT AND GUTTER LINE.
- 3 - SURFACE TEXTURE OF ALL RAMPS SHALL BE OBTAINED BY COARSE BROODING TRANSVERSE TO THE RAMP SLOPES AS DIRECTED BY THE ENGINEER AND SHALL BE ROUGHER THAN ADJACENT WALK.
- 4 - THIS DETAIL SHALL ONLY BE USED TO RETROFIT EXISTING CURB RAMPS AND SHALL NOT BE USED FOR NEW CURB RAMP CONSTRUCTION.



ROLLED CURB
INSTALL ONLY AT THE DIRECTION
OF THE ENGINEER

NOTES:

- 1 - WHERE A ROLLED CURB EXCEEDS SIX INCHES ABOVE THE WALK, THE CONTRACTOR SHALL INSTALL CURB PER THIS DETAIL. ROLLED CURB SHALL BE INSTALLED ONLY AT THE DIRECTION OF THE ENGINEER.

H ₁	W ₁	H ₂	H ₃
6"	6"	6"	12"
8"	6"	10"	18"
10"	8"	12"	22"
12"	10"	12"	24"

REVISED 12/8/08

CITY OF CLEVELAND

DEPARTMENT OF PUBLIC SERVICE
DIVISION OF ENGINEERING & CONSTRUCTION
JOMARIE WASK-DIRECTOR OF PUBLIC SERVICE
TYPICAL CONSTRUCTION
CURB RAMPS & ROLLED CURB DETAIL
NOT TO SCALE

SUBMITTED BY: W. MCLAUGHLIN
DATE: 4/8/08
DATE: 4/8/08

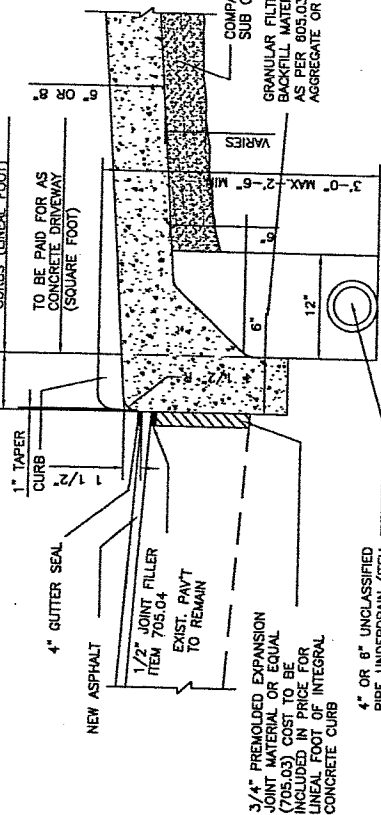
DATE: 4/8/08

COMMISSIONER OF ENGINEERING AND CONSTRUCTION

FILE NO.: CR 1 SHEET 6/6

6

TO BE PAID FOR AS INTEGRAL CONCRETE CURBS (LINEAL FOOT)

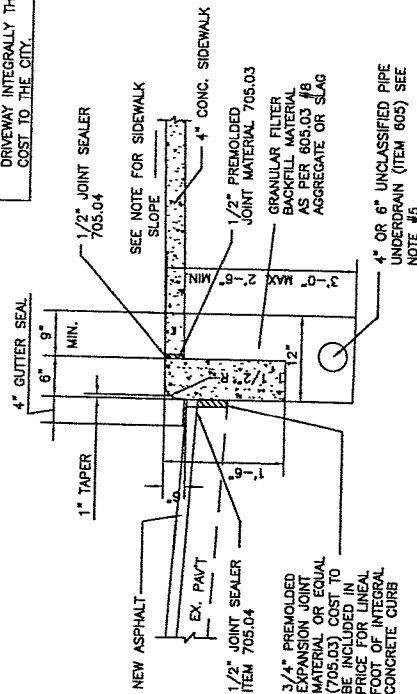


INTEGRAL CONCRETE DRIVEWAY

NO SCALE

OPTIONAL DETAIL

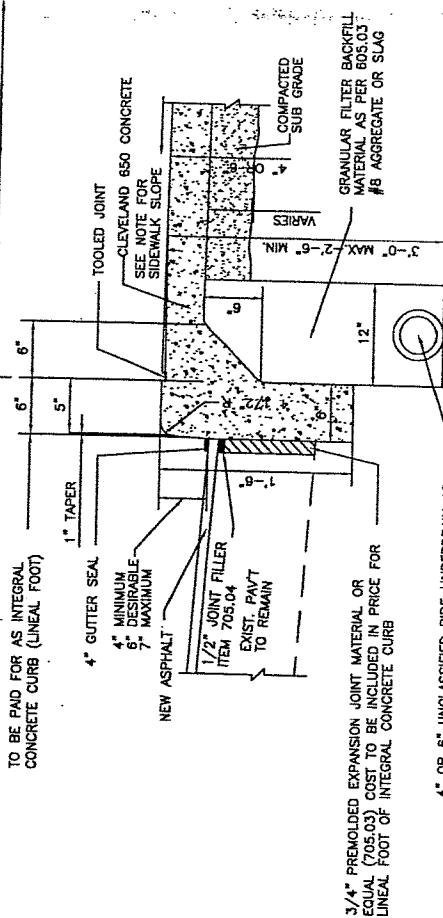
THE CONTRACTOR MAY USE THIS DETAIL IF GRANTED PERMISSION TO POUR THE CURB AND SIDEWALK OR DRIVEWAY INTEGRALLY THERE SHALL BE NO ADDITIONAL COST TO THE CITY.



CAST-IN-PLACE CONCRETE CURB

NO SCALE

TO BE PAID FOR AS CONCRETE SIDEWALK (SQUARE FOOT)



INTEGRAL CONCRETE CURB & WALK

NO SCALE

NOTES:

1. SAND BACKFILL AS REQUIRED TO ACHIEVE PROPOSED SUB GRADE. COST TO BE INCLUDED IN UNIT PRICE BID PER SQUARE FOOT OF SIDEWALK OR CONCRETE DRIVEWAY.
2. TRANSVERSE CONTRACTION JOINTS (5' CTRS) AND EXPANSION JOINTS TO BE CONSTRUCTED AS DIRECTED BY THE ENGINEER. JOINTS SHALL BE TOOLED 5" FROM THE STREET FACE OF THE CURB. 1/4" DEEP WITH EDGES ROUNDED TO A 1/4" RADIUS. COST TO BE INCLUDED IN PRICE PER SQUARE FOOT OF SIDEWALK OR CONCRETE DRIVEWAY.
3. TRANSITION FROM STANDARD CURB SECTION TO DROP CURB SECTION TO BE MADE IN 18" DISTANCE FROM DRIVEWAY.
4. SLOPE SHALL BE PROVIDED AS NEEDED TO DRAIN SIDEWALK AND TREELAWN AREA. 1/8" / FT. MIN. (1/4" / FT. DESIRABLE AND 5/8" / FT. MAX.). IF THE EXISTING CONDITIONS RESULT IN A UNIFORM SLOPE GREATER THAN 1/4" / FT. THEN THE SLOPE IN THE TREELAWN AREA MAY EXCEED THE MAX. AS NEEDED TO PROVIDE A SIDEWALK SLOPE OF 1/4" / FT. THE SLOPE IN THE WALK AREA OF DRIVE APRONS MUST NOT EXCEED ADA REQUIREMENTS OF 1/2" / FT. CROSS SLOPE.
5. UNDERDRAINS TO BE INSTALLED IN AREAS WHERE CURB IS TO BE REPLACED. THE UNDERDRAIN SHALL BE CONSTRUCTED SO AS TO MATCH THE LOCATION OF ANY EXISTING UNDERDRAIN TO REMAIN. UNDERDRAIN SHALL OUTLET AT CATCH BASIN. UNDERDRAINS SHALL HAVE FILTER FABRIC WRAP OR TRENCH IS WRAPPED WITH FILTER FABRIC AS SPECIFIED.

REVISED 12/3/08

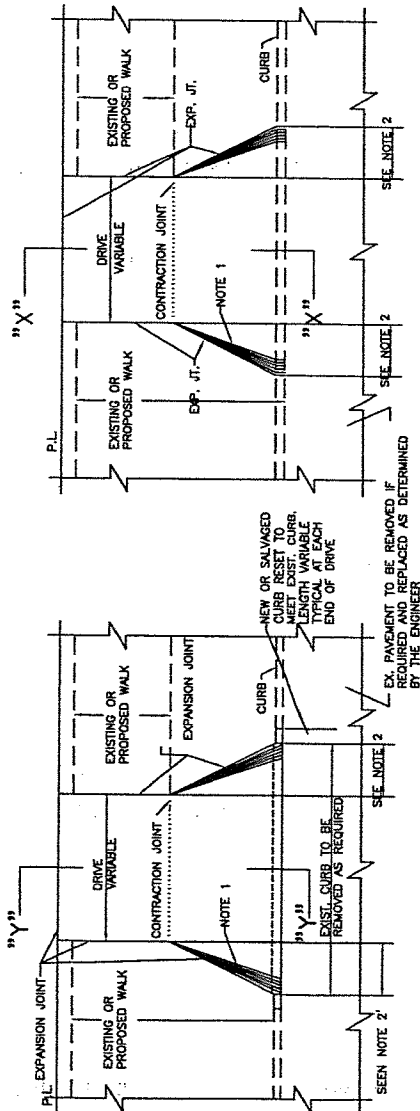
CITY OF CLEVELAND

DEPARTMENT OF PUBLIC SERVICE
DIVISION OF ENGINEERING & CONSTRUCTION
JONAMIE WASK-DIRECTOR OF PUBLIC SERVICE

CURB DETAILS
NOT TO SCALE

DRAWN BY: R. PILODZINSKAS
SUBMITTED BY: W. MCLAUGHLIN
APPROVED: *[Signature]*
DATE: 4/8/08
DATE: 4/8/08
DATE: 4/14/08

COMMISSIONER OF ENGINEERING AND CONSTRUCTION



PLAN FOR NEW DRIVE WITH
INTEGRAL CONCRETE CURB

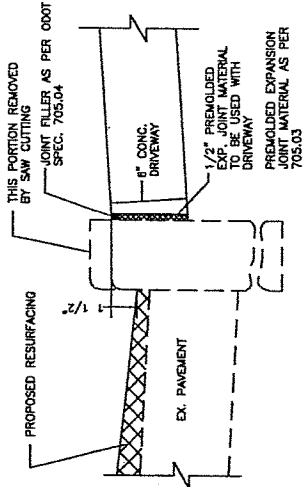
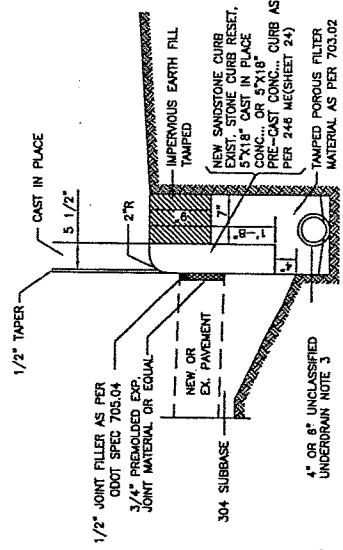
NOT TO SCALE

PLAN FOR NEW DRIVE WITH
CURB CUT

NOT TO SCALE

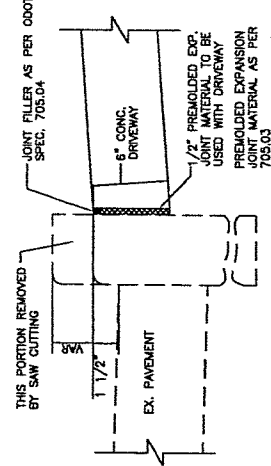
TYPICAL CURB CONSTRUCTION DETAIL

NOT TO SCALE



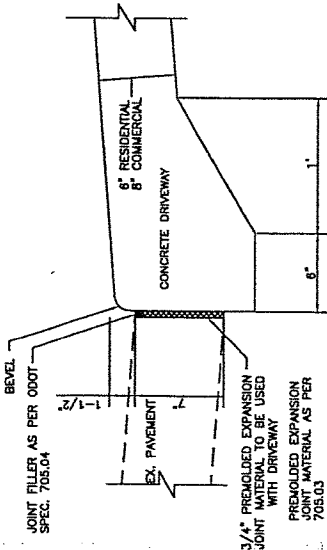
SECTION "X" - "X"

SHOWING PROPOSED DRIVE
GUTTER WITH RESURFACING
NOT TO SCALE



SECTION "X" - "X"

SHOWING PROPOSED DRIVE
GUTTER WITHOUT RESURFACING
NOT TO SCALE



SECTION "Y" - "Y"

NOT TO SCALE

NOTES:

- 1 - ON STREETS WITH NARROW TREELAWS AND SIDEWALKS OR WITH APPROVAL OF THE ENGINEER THE FOLLOWING DETAIL MAY BE USED.
- 2 - APRON FLARES ARE 3' FOR RESIDENTIAL AND 5' COMMERCIAL
- 3 - UNDERDRAINS SHALL HAVE FILTER FABRIC WRAP OR TRENCH IS WRAPPED WITH FILTER FABRIC AS SPECIFIED.

REVISED 8/3/09

CITY OF CLEVELAND

DEPARTMENT OF PUBLIC SERVICE

DIVISION OF ENGINEERING & CONSTRUCTION

JOMARIE WASIK - DIRECTOR OF PUBLIC SERVICE

STANDARD PLAN OF
TYPICAL CURB & DETAILS
AT DRIVEWAYS

NOT TO SCALE

DRAWN BY: R. ELIODZINSKAS

SUBMITTED BY: W. McLAUGHLIN

APPROVED: *[Signature]*

COMMISSIONER OF ENGINEERING AND CONSTRUCTION

DATE: 4/8/08

DATE: 4/8/08

DATE: 9/14/08

FILE NO. CD 1

SHEET 2/3

(18)



CITY OF CLEVELAND
MAYOR'S OFFICE OF CAPITAL PROJECTS
DIVISION OF ENGINEERING & CONSTRUCTION
BUREAU OF SIDEWALKS
ROOM 518 CITY HALL 216-664-2474



All Property owners in the City of Cleveland are responsible for the maintenance/repair of the sidewalks, apron, and curb and or gutter, which abuts their property as per City of Cleveland codified ordinance 505.11.

SIDEWALK AND OBSTRUCTION PERMITS

A Sidewalk permit is required for all repair /replacement of existing sidewalks, aprons, curbing and sidewalk intersections that are located within the city's right of way area. Property owners, their agents or bonded sidewalk contractors may perform the repairs. There is a \$25.00 fee for the sidewalk permit, which can be obtained in room 518 City Hall between the hours of 7:30 am to 4:00 pm. only. Payment can be made by cash, credit card, check, or money order made payable to The City of Cleveland.

A pre-pour inspection may be required prior to concrete placement. All form work shall be in place and sub base compacted. If a pre-pour inspection is indicated on your permit, please contact the Bureau of Sidewalks, between the hours of 7:30 am 8:30 am Monday through Friday, to schedule the inspection. A minimum of 24 hours advance notice is required for all inspections.

Sidewalk permits are not issued between November 15 and February 1 unless approved by the Director of the Mayor's Office of Capital Projects and with cold weather placement/protection procedure submitted and approved.

An Obstruction permit is required for all repairs performed in the Central Business District and at all locations citywide in, which a main street/sidewalk is obstructed. Please call 664-2174 or go to room 122, City Hall Street Permits Office for information and an application.

All repairs are to be performed per the City of Cleveland standards and detail drawings, which will be provided with the sidewalk permit or upon request.

CITY STANDARDS

SIDEWALK, DRIVEWALK AND APRON REPAIRS

Sidewalk, drive walk and apron replacements are to done in concrete with an air entrained concrete mix that has a minimum of 650 lbs. Cement per c. yard. Full slab repairs are required, joint-to-joint with a broom finish or approved equal and to the city's specifications. Concrete shall be placed on compacted 2" thick base of sand or gravel. Premium fill material shall be placed and compacted in lifts of 6 inches at all areas under the sidewalk that the sub grade has been excavated. **New brick, concrete or granite pavers must have approval prior to installation.** Full sandstone slabs may be relayed/reset if not broken or if the surface is dished or worn smooth. All sidewalk repairs in the Central Business District must be 6-inch thickness. Sidewalk repairs in residential areas are to be 4-inch thickness and all residential drive walk and aprons are to be 6-inch thickness. At all changes in slab thickness, ½" thick expansion joint material shall be placed and also at minimum of 30' intervals. All areas of new construction shall be protected and barricaded until the area can be opened to pedestrian or vehicle traffic without damage.

All commercial properties citywide are to have 8-inch thick drive walk and apron.

TREE ROOT GRINDING

The Division of Urban Forestry must perform grinding of tree lawn tree roots if located, under the sidewalk area prior to the repair of the sidewalk. Please call 664-3104 to schedule the root grinding. You must supply the sidewalk permit # which is located at the upper right corner of your sidewalk permit. The tree roots must be exposed prior to grinding. All Tree roots from trees located on private property that are causing sidewalk damage/ uplift are the property owner's responsibility to have removed prior to the repair of the sidewalks.

CURB REPAIRS

May be concrete or in kind material; this varies in which city district the repairs are to made. The City Planning Commission, room 501 city hall must be notified of any proposed changes of existing curbing material.

SIDEWALK INTERSECTIONS

All new sidewalk intersections shall be constructed to meet the Federal Government Mandated A.D.A. (AMERICANS WITH DISABILITIES ACT) requirements. Detailed ramp standards are available to assist in construction.

ESTABLISHING NEW SIDEWALKS, APRONS OR CHANGING CURB LINE

To establish new sidewalks, aprons or curbing, the Division of Engineering and Construction must review and approve the detailed plans prior to the issue of a sidewalk permit.

A Curb cut permit must be applied for and approved **prior to establishing** a new apron and drive section of sidewalk. Curb cut permits applications can be obtained from the Streets Permits Dept. Room 122 City Hall.

Changing of the existing sidewalk width, grade, curb line, paving of a tree lawn, or removal of an existing paved tree lawn to landscape must be approved by the Director, Mayor's Office of Capital Projects prior to the issue of a sidewalk permit. Detailed drawings are required to be submitted to the Administration Bureau Manager of Engineering & Construction, room 518, City Hall for approval.

TREE LAWN PARKING AREAS

Paving of a tree lawn for vehicle parking requires a separate tree lawn-parking permit to be applied for. A detailed drawing must be submitted showing location and size of the proposed parking area, measurements of the existing sidewalk, tree lawn, underground utilities, and all existing obstructions located on that side of the property and details showing the new pavement type and stripping. **No work can start until this permit is approved.**

ALL PERMITS ARE TO BE POSTED ON THE JOBSITE DURING CONSTRUCTION AND AVAILABLE FOR REVIEW ON REQUEST BY AUTHORIZED CITY PERSONAL.

Failure to secure an obstruction and or a sidewalk permit may result in a stop work order, traffic fines and other penalties as permitted by City ordinances.

Maintenance of Traffic Regulations

Traffic shall be maintained as directed by the Commissioner of Engineering.

1. The intended maintenance of traffic (MOT) plan must be presented to the Division of Traffic Engineering for review and comments. The MOT plan shall include the following information.
 - A. All existing pavement markings.
 - B. Curb to curb width of all affected streets.
 - C. Distances from work zone to nearest intersections.
 - D. Lateral distance from edge of work zone to curb line.
2. All MOT devices shall be installed according to **Part VI, "Work Zones" of the Manual on Uniform Traffic Control Devices (MUTCD- Millennium Edition)**.
3. Work which will back of the flow of traffic shall not be performed between the following hours:
 - A. Monday through Friday, inclusive, **7:00 AM to 9:00 AM**.
 - B. Monday through Friday, inclusive, **3:30 PM to 6:00 PM**.
4. The contractor shall furnish competent flagmen (off-duty police officers may be used) when needed to assist the flow of traffic and for the safe maneuvering of equipment and trucks.
5. Pedestrian travel will be accommodated across any sidewalk work area. In the event pedestrian travel is blocked; proper signage will be installed by the contract that will indicate the closure and direct pedestrians to cross at the nearest signalized intersection (unless directed otherwise by Traffic Engineering). Pedestrian walkways may be necessary as dictated by the Division of Traffic Engineering.
6. All trenches as cavities shall be plated during non-working hours.



CITY OF CLEVELAND
Mayor Frank G. Jackson

Winter Construction Conditions

The Division of Engineering and Construction has concerns for winter construction projects and being able to maintain a clean and safe construction zone throughout our winter months.

The work site conditions listed below will provide the least impact on snow removal and will aid in keeping our city streets clean and safe during the winter months.

- Smaller work zones; 200 lineal feet increments.
- Use of fast setting concrete and recessed plates for temporary closures.
Contractor must report the location of all plates to the Division of Streets at 216.664.3412.
- Use of off duty police officers for traffic maintenance.
- Clean and sweep construction site daily.
- Close down construction site upon notification of severe weather until the expiration of the severe weather watch or warning.
- No working while parking ban is in effect.
- The contractor is responsible for salting the work zone as well as maintaining safety for pedestrian and vehicular traffic at all times.

As always, each project will be reviewed individually and other conditions may be applied as necessary.

Winter can be a production construction season with proper coordination, cooperation and compliance.

NOTE:

The City of Cleveland reserves the right to close any construction in progress indefinitely due to weather conditions.

D-40 MONUMENT ASSEMBLIES, (ITEM 604)

Any person, Contractor, utility, or governmental agency, herein referred to as the Contractor, disturbing, removing and/or replacing pavement in the City of Cleveland's Public Right-of-Way shall provide information as to the type of work and the limits of the work to the City of Cleveland Chief Surveyor prior to performing such work. The Chief Surveyor will determine which monuments, if any will be affected by the work.

Where New Monument Assemblies are to be constructed, the Contractor shall furnish the following for each assembly as detailed on the City of Cleveland's Monument Box & Assemblies Standard Construction Drawing MB-1C: One(1) Cleveland Monument Box Assembly, One(1) one inch diameter epoxy steel deformed reinforcing bar thirty-six inches (36") long, flat on top with a round pointed end.

All Monuments Existing and Proposed must be referenced prior to construction. A minimum of 3-Ref. Pts. per Mon. must be used and must be located outside of the Construction Zone ("Work Area"). Care and Protective Measures shall be employed by the Contractor to Preserve Existing Monuments. All monuments disturbed and/or destroyed shall be reset as detailed on the City of Cleveland's Monument Box & Assemblies Standard Construction Drawing MB-1C. The Contractor shall use Competent Personnel and Suitable Equipment for the work required by this Detail Specification. All work shall be done by said Competent Personnel under direct supervision of a Professional Surveyor, Licensed and Registered to practice in the State of Ohio. Said Surveyor and Competent Personnel shall be hired by the Contractor.

Prior to beginning any work a copy of all Survey and Reference Notes is to be sent to the Attention of the Chief Surveyor at the City of Cleveland, Department of Public Service, Division of Engineering and Construction, 601 Lakeside Ave. Room 518, Cleveland, Oh. 44114. (216) 664-2460.

For monuments outside the Contractor's "Work Area", but near enough to the "Work Area" that may be disturbed for any reason, the Contractor shall be responsible for the replacement as if the monument were originally inside the "work area" as herein specified.

The Contractor shall perform all other operations necessary to complete this work item, such as pavement removal, excavation, setting the box to grade and pavement replacement. All work completed and accepted shall be paid for by the unit price bid for Monument Box Assemblies (Item 604).

All work shall be included and paid for at the bid unit price per Monument Assembly.

D-41 MONUMENT BOX ADJUSTED TO GRADE OR REPLACED (ITEM 604)

Where Monument Boxes are both suitable for re-use and conform to the City of Cleveland's Monument Box & Assemblies Standard Construction Drawing MB-C1, they shall be adjusted to grade as required and specified.

Where the plans call for the existing monument boxes to be replaced, the Contractor shall remove the existing monument box and replace it as detailed on the City of Cleveland's Monument Box & Assemblies Standard Construction Drawing MB-1C; set to proper grade.

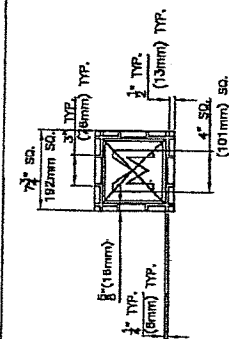
In addition to adjusting the casting vertically this pay item shall include centering the casting over the existing iron pin or stone. The entire monument box casting shall be adjusted to grade; no inserts or adjusting rings will be permitted.

If the existing iron pin or stone is either missing or damaged, a new monument assembly, as per D-40 shall be installed and paid for as a monument assembly.

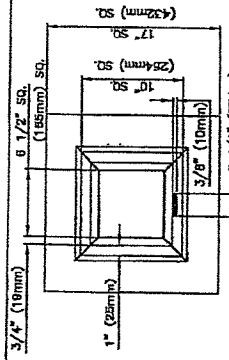
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Prior to beginning any work a copy of all Survey and Reference Notes is to be sent to the Attention of the Chief Surveyor at the City of Cleveland, Department of Public Service, Division of Engineering and Construction, 601 Lakeside Ave. Room 518, Cleveland, Oh. 44114. (216) 664-2460.

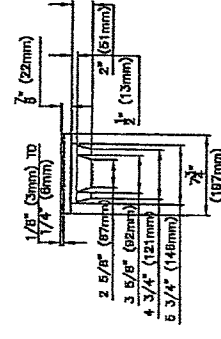
Payment for the above work shall be made under Item 604 - Monument Adjusted to Grade or Item 604-Monument Replaced and Set to Grade.



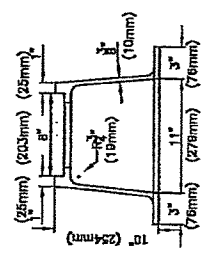
PLAN OF COVER



PLAN OF FRAME

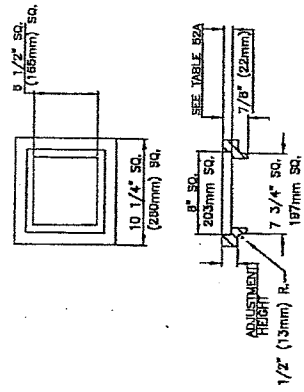


SIDE VIEW OF COVER



SECTION OF FRAME

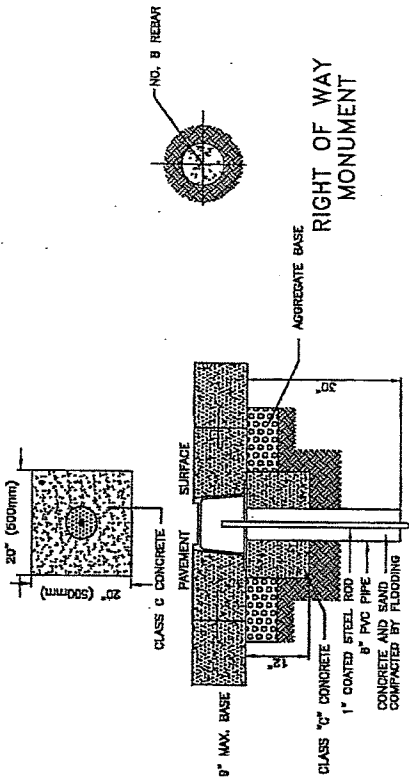
ADJUSTING RING



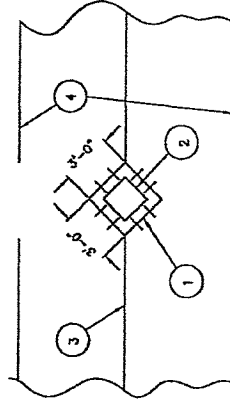
NOTE: ADJUSTING RING IS TO BE TACK WELDED TO THE FRAME BY LEAST TWO (2) POINTS OF AN APPROVED METHOD.

ADJUSTMENT	DIMENSION	WEIGHT
1-1/8" (25mm)	2" (51mm)	14-LBS. (6.4 kg)
1-1/2" (38mm)	2-3/8" (60mm)	20-LBS. (9.1 kg)
2-1/2" (64mm)	3-3/8" (89mm)	27-LBS. (12.2 kg)
3" (76mm)	3-7/8" (98mm)	30-LBS. (13.6 kg)
3-1/8" (83mm)	4-3/8" (111mm)	32-LBS. (14.5 kg)

MONUMENT ASSEMBLY SECTION



ROADWAY MONUMENT ASSEMBLY



RIGHT OF WAY MONUMENT

NOTES

CASTING SHALL MINIMALLY MEET THE REQUIREMENTS OF ASTM SPECIFICATION A 48 CLASS 35 GRAY IRON OR 711.13 DUCTILE IRON. THE ASSEMBLY SHALL BE ESSENTIALLY THE SAME AND EQUALLY AS STRONG AS THOSE SHOWN HEREON.

MINIMUM WEIGHTS:
 FRAME --- 94 LBS. (42.6 kg)
 COVER --- 10 LBS. (7.3 kg)
 PROVIDED THEY COMPLY WITH THE SPECIFICATIONS, DETAILS, DIMENSIONS AND MINIMUM WEIGHTS.

OR APPROVED EQUAL CASTINGS ARE ACCEPTABLE.

BEARING AREAS SHALL BE FINISHED AS TO PROVIDE A FIRM AND EVEN SEAT. NO PROJECTION SHALL EXIST ON THE MONUMENT BASE AND THE COVER SHALL SEAT IN ITS FRAME WITHOUT ROCKING.

PRIOR TO CONSTRUCTION OF PAVEMENT, THE FRAME SHALL BE SET TO GRADE IN SUCH A MANNER THAT IT WILL MAINTAIN ANY PAVEMENT MATERIAL FROM ENTERING THE CASTING.

CONTACT CITY OF CLEVELAND SURVEY DEPT. AT (216) 864-2440 AT LEAST TWO (2) WEEKS PRIOR TO THE DISTURBANCE OF ANY EXISTING MONUMENTS.

ALL MONUMENTS ARE TO BE SET UNDER THE DIRECTION OF A REGISTERED SURVEYOR. (REF. O.A.C. 4733-57-05)

WHERE CLEVELAND REGIONAL GEDDING SURVEY (C.R.G.S.) MONUMENT ASSEMBLIES ARE MARKED ON THE PLANS TO BE STORED THE MONUMENTS SHALL BE CAREFULLY REMOVED AND MARKERS FOR SALVAGE BY THE COUNTY. THE CONTRACTOR SHALL ALSO NOTIFY THE REGIONAL GEDDING SURVEY OFFICE AT (216) 348-3846, SO THAT THE MONUMENT CASTINGS AND SURVEY CHAINS, MARKERS MAY BE PICKED UP. PAYMENT SHALL BE MADE TO THE SURVEYOR FOR THE MONUMENT ASSEMBLY ABANDONED, C.R.G.S. MONUMENT.

ITEM 802--MONUMENT ASSEMBLY ABANDONED, C.R.G.S.
 MONUMENT CLEVELAND MONUMENT BOX
 ITEM 803--CITY OF CLEVELAND MONUMENT
 ASSEMBLY
 ITEM 804--CITY OF CLEVELAND RIGHT OF WAY MONUMENT MONUMENT BOX ADJUSTED TO GRADE, AS PER PLANS, WHEN EXISTING MONUMENT BOX CONFORMS TO 10'-0" AND IS SUITABLE FOR (REUSE)

LEGEND

- CONCRETE CLASS "0"
- SAND (70/100), COMPACTED AS REQUIRED
- SUBBASE/AGGREGATE BASE PER THE PLANS.
- UNDISTURBED EARTH OR SUITABLE BACKFILL AND FIRM FOUNDATION IN ACCORDANCE WITH 604.04 AND TO THE SATISFACTION OF THE ENGINEER.

CITY OF CLEVELAND
 DEPARTMENT OF PUBLIC SERVICE
 DIVISION OF ENGINEERING & CONSTRUCTION
 JONAH WASK--DIRECTOR OF PUBLIC SERVICE
 MONUMENT BOX ASSEMBLIES
 NOT TO SCALE

REVISED BY: B. PLUDZINSKAS DATE: 4/8/08
 SUBMITTED BY: W. MCLAUGHLIN DATE: 4/8/08
 APPROVED: *[Signature]* DATE: 2/28/08
 COMMISSIONER OF ENGINEERING & CONSTRUCTION

D-24 CONCRETE DESIGN MIX (ITEM SPECIAL)

All applicable work items shall be bid using the concrete mix design specified in this section. Under this section of these specifications the contractor is required to submit a separate mix design for each combination of cement type, aggregate type and concrete supplier they will use under this contract. Each mix shall be designed in accordance with ASTM-C94-94 Option C and as herein modified.

<u>REQUIREMENT</u>	<u>DESCRIPTION</u>
Minimum twenty-eight (28)	4,000 PSI for 28 days compressive strength test. Four cylinders will be taken and tested as per ASTM C-39-04. One to be tested at seven days and the remaining three will be tested at twenty-eight) days. Acceptance will be based on the average results of the three cylinders.
Minimum Cement Content	650 lbs. per cubic yard. The cement shall conform to ASTM C-150-04 or C-595-04. IF <u>ANY</u> limestone is used, then the City <u>REQUIRES</u> <u>THAT</u> all of the information described in ASTM C-150-04 be furnished.
Water Cement Ratio	0.45 Maximum
Slump	Nominal three inches (3") as per ASTM C-94-04 (2"-4" actual). The use of chemical admixtures meeting ASTM C-494, to increase the slump to a maximum of 7", may be used with prior written approval of the Engineer. If this option is selected the admixture and resultant maximum slump shall be submitted for approval.
Air Content	Four percent (4%) to seven and one half percent (7 1/2%) ASTM C-173-04 or C-231-04.
Aggregate Size	No. 57 for course aggregate shall be limestone, gravel or crushed air-cooled blast furnace slag. Both course & fine aggregate as per ASTM C-33-04.

If crushed air-cooled blast furnace slag is used it shall meet all of the requirements of ODOT 703.01 and 703.02. Copies of all tests and certifications for the crushed air-cooled blast furnace slag, if used, shall be submitted as a part of the concrete mix design.

Steel Slag Aggregate (703.01E) is not permitted for use as an aggregate in concrete.

When high early strength is required, ASTM C-150-04 Type III A cement or admixtures in accordance with ASTM C-494-04 shall be used.

The City of Cleveland Engineering and Construction Division will determine if the Contractor is required to furnish a signed affidavit, in triplicate, from each concrete supplier to the Commissioner giving dry weight and type of concrete, saturated surface-dry weight and the type of fine and course aggregate, and quantity, type, and name of each admixture and weight of water per cubic yard of concrete. The Contractor shall also furnish twenty-eight (28) day cylinder tests (per testing section) as verification that the materials used and the proportions selected will produce concrete of the quantity specified.

Hot and cold weather protection (blankets, heaters, ice, etc.) shall be included in the unit price bid.

The Contractor is required to comply with all the above requirements. The Contractor shall also require that all of the sub-contractors placing concrete under this contract comply with all of the above requirements.

The City of Cleveland may require the Contractor to supply test results for materials used within the project limits. Current ODOT and City of Cleveland standards for testing asphalt concrete, embankment, etc. must be followed, with all results being submitted to the City of Cleveland Engineering and Construction Division.